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ABSTRACTS BOOK

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ORAL PRESENTATIONS

Dental education

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ORAL PRESENTATIONS

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THE COMPARİSON OF THREE DİFFERENT MOUTH WASHES ON STAİNİNG OF PLAQUE FREE ENAMEL SURFACE: İN VİTRO STUDY

Akbas, Yasemin

Friday, September 14th 11:30

Coauthors:	Hamiyet Kilinc		
	Gülbahar Ustaoğlu		

OBJECTİVE:

Dental staining is a well known and probably the most problematic side effect of using chlorhexidine oral products. Whatever mechanisms are involved, there is no doubt that cationic antiseptics, such as chlorhexidine, can precipitate or bind to surfaces anionic chromogens contained in foods and beverages. The aim of this study was to investigate the persistence of staining after the use of different oral rinses.

MATERİAL AND METHODS:

A total of 48 extracted central tooth was used for the study. Teeth were immersed in 4 different solutions; 0.15 % benzidamin HCl and 0.12% chlorhexidine (BC); essential oils (EO); 0.3% zinc acetate dihydrate and 0.025% chlorhexidine aqua (ZC) and saline solution as a control (C). The color values (L*,a*, and b*) of each tooth were measured with a colorimeter before and after exposure of 1 day, 1 week, 2 weeks. Color changes (ΔE) were calculated according to the CIE L*a*b* system. One-way ANOVA, Tukey HSD tests were used for statistical analyses ($p<0.05$)

RESULT:

Comparison of ΔE values after immersion revealed no significant differences for all periods ($p>0.05$). The lowest color change was observed in (ZC) (2.9ΔE) after immersion of 1 day; while EO exhibited the most after 2 weeks (5.3 ΔE). There were significant differences between the ΔL* values of (EO) and (ZC) at 1 day ($p=0.046$). For all periods there were significant differences of Δa* values between (C) and (BC); and between (BC) and (ZC) ($p<0.05$). there were no significant differences between the Δb* values for all periods between the groups ($p>0.05$).

CONCLUSİON:

Although there were no significant differences between the discoloration affect of the oral rinses, discolorations were found clinically unacceptable; as only (C) groups exhibited ΔE values lower than 3.5 units. For long-term esthetic results using ZC oral rinse may be a good choice for patients.

COMPARATIVE STUDY OF IMPLANT-SUPPORTED ABUTMENTS DEPPENDING OF MANUFACTURED

Molinero-Mourelle, Pedro

Friday, September 14th 12:15

Coauthors:	Gómez-Polo, Migue	Pow, Edmond	Celemín-Viñuela, Alicia
	Lam, Walter	Romeo-Rubio, Marta	Del Río Highsmith, Jaime

The Objective of this research protocol is compare the degree of microleakage and fit of chrome-cobalt frameworks, depending on their manufacturing technique, against zirconia abutments.

A tansversal IN VITRO comparative study of 60 titanium tapered implants, 15 cobalt-chrome cast frameworks, 15 sintered cobalt-chrome frameworks and 15 milled cobalt-chrome frameworks and 15 zirconia abutments. A standard metacrilate acrylic resin cylinder block will contain the implants with the abutment. The samples will be put under occlusal load cycles in an axial direction to the implant by means of a dynamic fatigue system. The number of occlusal cycles will be 300.000, with 200kg load, every 0.5 seconds. The cylinders will be placed in a thermal cycler, where two sessions of 2000 underwater cycles shall be carried at 5ºC for 5 seconds, and afterwards at 50º C, for another 5 seconds. Finished these two processes, all samples will be stored in distilled water dor 24 hours. Afterwards, they will be introduced in a solution of 0.2% methylene blue (methylthioninium chloride), at 37o for 24 hours, which is used as the staining agent for this study.

The aim of this work is to present a research protocol of a PhD thesis that is currently being carried out.

KEYWORDS:

Dental implants, Prosthodontics, Dental Prosthesis, Implant-Supported. Dental Prosthesis Design.

ANALYSIS OF ANTERIOR TOOTH DISPLAY PROPORTION AMONG DENTAL SCHOOL STUDENTS

Taha, Mushammed Esad

Friday, September 14th 12:30

Coauthors:	Ozyilmaz, Ozgun Yusuf		

The aim of the present study was to investigate the effect of gender on the degree of maxillary central incisor tooth proportion (appearance of tooth / clinic tooth length) and anterior teeth display when the lips are during smiling.
A total of 71 dental school student subjects (38 males; 33 females) were included in the study. All of the subjects had all natural anterior teeth present with no caries, extreme occlusal wear, restorations, extrusion, obvious deformities or tooth mobility. Subjects with a history of congenital anomalies, periodontal disease, lip trauma, or facial surgery were excluded. Crown length during smiling were measured using an electronic digital compass, which had a resolution of 0.01 mm. The visible portions of the maxillary anterior teeth were measured vertically from the lower border of the upper lip to the incisal edge of the incisors, or cusp tip for the canines. Photos taken by DSLR machine on tripod with 105 mm macro lens under the soft box flashes. Measuring made with virtual ruler that calibrated from real mesial-distal length like Digital Smile Design protocol. Virtual ruler customized for each person and all measurement calculated with it on Keynote program.
Females (μ=9.39) displayed more buccal length for maxillary incisors than males (μ=8.97) during smiling. Display of canines between females ..... were higher than males (μ=8,24) also in lateral display of females (μ=8,08) were observed higher than males (μ=-7,94). Average gingiva display in males (μ=-1,61) was lower than females (μ=-0,56).

Although appearance tooth of females was longer than males during smiling, display proportion (visible tooth / clinic crown) was smaller for males.

EVALUATION OF PROSTHODONTIC COMPENTECES AFTER GRADUATION

Vavrickova, Lenka

Friday, September 14th 12:45

Coauthors:	Kapitan, Martin		
	Hubalkova, Hana		

OBJECTIVE:

The goal of the study was to evaluate the prosthodontic compentences after graduation at Charles University, Faculty of Medicine in Hradec Kralove. The former students´ opinion was found out to distinguish the level of knowledge „to be competent at" and „to have knowledge of".

METHODS:

The questionnaire consisting of 45 questions divided to 3 categories was prepared: the scientific foundations of prosthodontic practice (SF), the prosthodontic treatment (PT) and self-evaluation of prosthodontic experience (PE) after graduation. The level of knowledge was defined on the top of the questionnaire, which was send enclosed via e-mail to past students (czech and international) from 1 up to 3 years after graduation. Answers were anonymous, only gender, age, the year of graduation were claimed.

RESULTS:

In total 22 % of czech and 39 % international students responded all questions. SF was valuated positive, while PT was criticized for lack of complexly treated patients as well as the orientation of last year of the studies to prosthodontic implantology. PE in first year after graduation was very variable (e.g. 0 to 30 complete dentures done).

CONCLUSION:

Under limitation of the study results showed changes needed in the prosthodontic curriculum. Students prefered one patient complexly treated in all departements, not only parts of the working procedures in different patients. The students´ opinions and PE depended on their current specialisation in dentistry. The need of practical conventional removable prosthodontic education was proved.

KEYWORDS:

Prosthodontic, Education.

ORAL PRESENTATIONS

Dental materials

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ORAL PRESENTATIONS

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BOLKY	CHISTIAN	Germany	Color stability of premium anterior denture theeth after artificial aging		Sep 13th 16:30	Grados Room
HUBALKOVA	HANA	Czech Republic	Hypoplastic Maxilla and Teeth Retention- Interdisciplinary Treatment		Sep 13th 17:20	Grados Room
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SAYIN	BAHAR	Turkey	Does Zirconia Sintering Process Affect the Fit of Monolithic-3-unit Bridge?		Sep 14th 9:15	Grados Room
SEÇKIN	ÖZGE	Turkey	Influence of Retraction Agents on Surface Roughness, Color Stability And Microhardness of Dentine Surface.		Sep 14th 9:00	Grados Room
SHAHRAMIAN	KHALIL	Finland	Sol-gel derived bioactive coatings on zirconia enhance biomechanics of soft-tissue attachment.		Sep 14th 9:30	Grados Room
TEMIZKANLI	HUSEYIN OZAN	Turkey	Does zirconia sintering process affect the fit of monolithic-single-unit crowne?		Sep 14th 9:45	Grados Room

MECHANICAL PROPERTIES OF DIFFERENT PROVISIONAL RESTORATION CAD/CAM MATERIALS

Atay, Ayşe

Thursday, September 13th 16:15

OBJECTIVE:

The aim of this study was to evaluate mechanical properties of two different provisional restoration CAD/CAM materials (Telio CAD [TC], poly(methyl methacrylate) (PMMA)-based; Vita CAD-Temp [VC], a cross-linked acrylate polymer with microfiller) after different storage conditions.

MATERIALS AND METHODS:

36 bar-shaped samples of 4 mm in width and 14 mm in length with 1.2 mm thicknesses were prepared from each material group. The specimens from each material were divided into three different storage condition groups: group 1 (under dry conditions at room temperature), group 2 (37°C distilled water for 7 days), group 3 (37°C distilled water for 7 days followed by 10,000 thermal cycles). All specimens subjected to a 3-point flexural test. The specimens were loaded until failure. Twelve fractured specimens after the flexural test from each group were used for the Vickers hardness test (VH) (under 300 gf of loading in 15 seconds). The flexural modulus (E), flexural strength (σ) and hardness were separately analyzed with two-way analysis of variance (ANOVA), Tukey's multiple comparison tests at a significance level of $p<0.05$.

RESULTS:

There were statistically significant differences between materials and storage conditions according to E, σ and VH values ($p<0.05$). E, σ and VH values were significantly decreased after water storage followed by thermal cycles when compared with dry storage ($p<0.05$). VC group showed significantly higher E , σ and VH values than TC group ($p<0.05$).

CONCLUSSION:

It was concluded that the mechanical properties of provisional restoration CAD/CAM materials had showed a significantly decrease after water storage followed by thermal cycles but their mechanical properties were acceptable for fabrication of provisional restorations.

KEYWORDS:

Provisional restoration materials, CAD/CAM, Flexural Modulus, Flexural strength, Vickers hardness.

COLOR STABILITY OF PREMIUM ANTERIOR DENTURE TEETH AFTER ARTIFICIAL AGING

Bolky, Christian

Thursday, September 13th 16:30

Coauthors:	Diedrichs, Dr. Gabriele		
	Hugger, Prof. Dr. Alfons		

OBJECTIVES:

Wear resistance and high esthetics are mandatory for anterior denture teeth, therefore a smooth, color stable and shiny surface is imperative. However, resin denture teeth still dominate the market in removable prosthodontics. The aim of the study was to evaluate the surface qualities of various premium anterior resin denture teeth after artificial ageing and to test their color stainability.

MATERIALS AND METHOD:

Color stability of in total n=100 denture teeth (n=20 central incisors of five products) have been tested. Porcelain denture teeth (Physioset-CT, Candulor®) served as the control group. The resin test groups were as follows: Nano composite group: Physiostar-NFC+ (Candulor®), Phonares 11 (Ivoclar Vivadent®); PMMA group: Artegral (Merz®), Tribos 501(Gebdi®). All groups were exposed to themocycling (Willitech®, Thermocycler V 3.0, 5.000 cycles, temperatures 5 and 55 degrees). Specimens (n=5) were divided into two sides to evaluate the effect of tooth brushing (Braun® Oral-B Pro-6000) and color stainability in Coca Cola®, red wine, coffee, curcuma solution, and distilled water. Discoloration was analysed by colorimeter (ShadeEye-NCC, Shofu®) using the CIELAB color coordinates L*, a*, b* and color difference delta E. Comparisons were performed using multivariate analysis of variance with posthoc Bonferroni tests (IBM SPSS Software). $P < .05$ was considered statistically significant.

RESULTS:

Curcuma caused the highest Eta2 (measure of effect size for use in analysis of variance), almost doubling red wine and coffee effects. Artegral (PMMA) showed the second best results after Physioset-CT (Porcelain). The strongest influence on delta E was exerted by the factors „fabricator/material type" and „staining liquid" apart, and the combination of the two of them, especially in addition to cleansing.

CONCLUSION:

This research showed that porcelain is the most resistant material among the investigated denture teeth. Nevertheless, allegedly new premium PMMA resins momentarily manage to equal porcelain in terms of color stability.

HYPOPLASTIC MAXILLA AND TEETH RETENTION-INTERDISCIPLINARY TREATMENT

Bartonova, Marie

Thursday, September 13th 17:20

Coauthors:	Hubalkova, Hana	Charvat, Jindrich	
	Kotova, Magdalena	Vavrickova, Lenka	

OBJETIVE:

Born disposition of hypoplastic character of left maxilla with defect of evolution in molar region. It is a serious condition for the future evolution and function of the masticatory system including both, mild and serious disorders e.g. destabilization of interjaw relations or destruction of TMJSs. Up to date technologies hand in hand with new materials enable therapeutic possibilities in atypical clinical cases which were difficult to solve in the past for maximum aesthetic and satisfaction of the patient.

METHODS:

16 year old patient with retention of teeth 26, 27, 28. With laterogenia, hypoplastic left maxilla and cross-bite l. sin. , facial and ear asymmetry. At first there was the indication for surgical and orthodontic therapy based on extrusion of non- erupted molars with following orthodontic final treatment.

Orthodontic implants and fixed orthodontic appliance were used. This primary surgical and orthodontic intervention was not successful. Based on 3D CT examination the cause of the previous treatment failure was detected: the deformed roots locked by the palatal bone desk. It was the limit of this orthodontic treatment. But it was also an extreme tilt of the long teeth axis excluded conventional prosthetic treatment. Atypical root canal system was contraindication for endodontic treatment following by prosthetic means. Clinical crowns 25, 26, 27 were open up and atypical full ceramic CAD/CAM crown reconstructions were produced.

RESULTS:

Prolonged interdisciplinary treatment reached successful functional and aesthetical result. Correct occlusion and articulation in the molar area provided optimal occlusal plane and pleasant smile aesthetics.

CONCLUSION:

The effective therapy of series M-F disorders should always be based on sophisticated examination and treatment methods which are important in interdisciplinary care. The presented clinical case demonstrates minimal invasive methods with respect to vital structures leading to achieving long term stability, functional and aesthetic results.

CAD/CAM CERAMIC-LIKE MATERIALS: BIBLIOGRAPHIC REVIEW AND IN VITRO EVALUATION OF RESISTANCE

Dovalatian, Araxi

Thursday, September 13th 17:50

Coauthors:	Fernández Villar, Sandra	Navalón Codina, Feliciana	Fenés Barber, Cristina
	Giner Tarrida, Luis	Arregui Gambús, Maria	

BACKGROUND & INTRODUCTION:

In search of esthetics and resistance we find ourselves with metal-free materials as the first option for dental rehabilitation. The most common materials are ceramics and reinforced resins. The introduction of CAD/CAM technology to the dental field has lead to the appearance of reinforced resins or ceramic-like materials, which seek to obtain the advantages of both materials. The aim of this work is to classify CAD/CAM ceramic-like materials, to determine their mechanical and aesthetic properties, and their clinical indications.

METHODS & MATERIALS:

A literature search was conducted within the PubMed database for articles published between 2008 and 2018 and an in vitro study with the purpose of analysing the resistance of restorations manufactured by CAD/CAM technology using ceramic-like blocks.

RESULTS:

As a result of this literature review, we have identified the advantages and drawbacks of different materials, which will be helpful when choosing the ideal material for each case in the clinic.

CONCLUSION:

After researching the information available about reinforced resins in the literature, we have seen that these materials seem to be a good treatment option, however after carrying out this review, we decided to do study in order to evaluate their resistance, since we believe that there is a lack of studies that demonstrate long-term clinical in vitro results. Overall, the results demonstrate that it is possible to combine aesthetics, resistance and achieve long-term predictability of CAD/CAM restorations manufactured by reinforced resins.

KEYWORDS:

Ceramics, CAD/CAM, reinforced resin.

EFFECTS OF ER:YAG LASER ON DEBONDING FORCES OF RESIN BONDED LITHIUM DISILICATE VENEERS: A PILOT STUDY

Gozneli, Rifat

Thursday, September 13th 18:05

Coauthors:	Karagoz, Merve		
	Ozkan, Yasemin		

AIM:

The aim of this study was to investigate the effects of different Er:YAG laser application parameters on debonding strength values of all-ceramic restorations cemented on different tooth surfaces.

MATERIALS AND METHODS:

Thirty caries free, mandibular incisor samples, extracted for periodontal reasons were cleaned of debris and embedded in self-cure acrylic resin. E.max Press HT (Ivoclar Vivadent) disc specimens (1mm thickness and 3mm radius) were cemented by using Variolink N (Ivoclar Vivadent) resin cement on tooth samples' labial surfaces, which were prepared at enamel and mixed (enamel-dentin) surfaces equally. The specimens were divided into 6 groups (n=5); 1st group on enamel and without laser application, 2nd group on mixed surface and without laser application, 3rd group on enamel and laser applied (600m), 2 Hz), 4th group on mixed surface and laser applied (600m), 2 Hz),5th group on enamel and laser applied (165m), 30 Hz), 6th group on mixed surface and laser applied (165m), 30 Hz). Er:YAG laser was applied on specimens for 3 seconds. Shear bond strength values were obtained by using a Universal testing machine at a speed of 0.5 mm/min. In addition to mean values and standard deviations, one-way ANOVA and t-Test were used for statistical analysis ($p<0.05$).

RESULTS:

One-way ANOVA test revealed significant difference between groups for each tested factor ($p<0.001$). Mean and standard deviations of groups tested on enamel were; 1st group 12.43±0.3 MPa, 3rd group 9.85±0.13 MPa and 5th group 5.41 ± 0.38 MPa. Mean and standard deviations of groups tested on mixed surfaces were; 2nd group 5.08±0.45 MPa, 4th group 2.17±0.16 MPa and 6th group was 1.37±0.03 MPa.

CONCLUSION:

Er:YAG laser application decreases the shear bond strength of all-ceramics cemented whether on enamel or mixed surfaces. When the depth of preparation increases, frequency and energy parameters of laser application can be decreased.

KEYWORDS:

All-ceramic, debonding, Er:YAG laser, shear bond strength.

COMPARISON FO CLINICAL EFFICACY OF DIFFERENT GINGIVAL DISPLACEMENT METHODS

Karabekmez, Didem

Thursday, September 13th 18:20

Coauthors:	Anil, Nesrin		

PURPOSE:

Various gingival displacement methods are used to detect preparation finish line and soft tissue displacement. The purpose of this in vivo study was to determine the quantity of gingival displacement by using different mechanical and chemico-mechanical retraction methods, to evaluate clinical effects and efficacy of gingival displacement applications as well as integrity of finish line on impressions.

MATERIAL AND METHODS:

Teeth number of 13,11,21,23 in the maxilla were prepared in 12 individuals with healthy gingiva. Epigingival finish line was applied on the prepared teeth. Four gingival displacement methods were performed for each tooth by using double-cord technique. These methods were non-impregnated retraction cord, 15%AlCl3 impregnated retraction cord, 15%AlCl3 impregnated fine copper wire retraction cord (Stay-put) and 15%AlCl3 retraction paste. Pain, ease of application, bleeding index and remnants (debris) were assessed during application. Following the applications, integrity of the finish line on impressions were clinically assessed. Three dimensional digital models of impressions which were taken before and after retractions were examined in a three dimensional imaging and analysis programme and horizontal, vertical and total displacement were measured. The data were statistically analyzed using Kruskal Wallis, Mann Whitney U and Multivariate Regression Analysis.

RESULTS:

There was a statistically significant difference among all parameters except pain ($p<0.05$).

CONCLUSION:

Retraction paste was found easiest to apply even though it had the highest debris presence ratio. Non-impregnated cord showed the highest bleeding rate after application. 15%AlCl3 impregnated cord was found the best material for achieving integrity of finish line on impression. Stay-put and retraction paste showed highest amounts of horizontal and total displacement. In addition to that Stay-Put also revealed highest vertical displacement amount.

KEYWORDS:

Gingival retraction techniques, Dental materials.

EVALUATION OF ENAMEL-ADHESIVE INTERFACE IN LAMINA RESTORATIONS WITH AND WITHOUT RESIN EXTENSIONS IN FEM STUDY

Mert Eren, Meltem

Thursday, September 13th 18:35

Coauthors:	Celebi, Alper Tunga	Yildiz, Esra	
	Mugan, Ata		

OBJECTIVE:

The purpose of this study is to analyze the effect of three-dimensional enamel-adhesive interface connection which is generally neglected in finite element method (FEM) studies.

METHODS:

Six laminate ceramic restorations were luted with two different adhesive cements; low and high elasticity modulus and sectioned bucco-palatinally with a low speed saw. SEM microphotographs of enamel/adhesive cement interface were performed for each adhesive cement (n=7). Three-dimensional micro-finite element models were created separately for each adhesive cement with mean resin extensions, which reflect the morphological properties of the enamel-adhesive cement interface and also generated models which is considered as straight contact of the interface. The graphical images were obtained by calculating the Tresca maximum shear stress formed under the load of 10 N applied vertically to the enamel-adhesive cement interface in the geometric models. The interfaces of the models with and without resin tags were compared.

RESULTS:

The maximum Tresca shear stress value of the resin extension model with low elasticity adhesive cement was determined 7.59 MPa, and without resin tags model the maximum Tresca shear stress value was detected 8.02 MPa. The models with high elasticity adhesive cement were determined 6.7 MPa with resin tags and 8.03 MPa without resin tags.

CONCLUSION:

This study concluded that the creation of resin extensions on the model results in lower stresses occurring at the interface than the straight contact interface models.

KEYWORDS:

Dental Cements, Adhesive, Elastic Modulus.

IN VITRO EVALUATION OF CYTOTOXICITY OF DIFFERENT RESIN LUTING CEMENTS

Oguz, Ece Irem

Thursday, September 13th 18:50

Coauthors:	Hasanreisoglu, Ufuk		

OBJECTIVE:

The biocompatibility of resin cements is a critical issue since these materials are used with contact to vital tooth structures. The aim of this study was to evaluate the cytotoxicity of four commercial resin-based luting cements on fibroblast cells using different polymerization protocols.

MATERIALS AND METHOD:

Two conventional resin cements (RelyX ARC, Variolink N) and two self-adhesive resin cements (RelyX Unicem, Multilink Speed) were tested. To cure the samples, four different polymerization protocols were applied including dual-activation with direct light application, dual-activation over glass ceramic and resin nano-ceramic discs, and chemical-activation. The specimens prepared according to different polymerization protocols were subdivided into four groups to be tested at 0-,1-,2-,and 7-preincubation days. A total of 240 samples were prepared, with 5 samples in each group. To examine the cytotoxic effects of the samples, MTT assay was performed using N1H/3T3 fibroblast cells. Data was analyzed with three-way and one-way ANOVA. Multiple comparisons were performed by post hoc Bonferroni test ($p<0,001$).

RESUTLS:

The maximum and minimum cell survivals for all preincubation times and for each resin cement tested were obtained from directly light-activated and self-activated samples, respectively. The highest cytotoxic values were recorded at day2 for conventional resin cements and at day0 for self-adhesive resin cements. Cytotoxicity of cements reached the lowest level at day7. Interposition of a ceramic or nano-ceramic restorative material did not significantly affect the cytotoxicity of tested luting cements since the cytotoxicity values obtained from these samples were similar to that of directly light-activated ones.

CONCLUSION:

Cytotoxicity of dual-cured resin cements is material-dependent and decreases gradually over time. The light-activation plays an important role in reducing the cytotoxic effect. Irradiation through ceramic and nanoceramic resin materials doesn't significantly affect the cytotoxicity of the cements.

KEYWORDS:

Resin Cements, Cytotoxicity, Ceramics, Dual-Curing of Resin Cements, Self-Curing of Dental Resins

THE EFFECT OF DIFFERENT POLISHING METHODS ON ROUGHTNESS AND COLOR STABILITY OF AIR-ABRADED RESTORATIVE MATERIALS

Ozdogan, Mahmut Sertac

Thursday, September 13th 19:05

Coauthors:	Soganci, Gokce	Aydemir, Kubra Aybuke	
	Aykent, Fliliz	Tural, Mine	

PURPOSE:

The aim of this study is to evaluate the effect of polishing methods on roughness and color stability of air abraded composites, nano-ceramic resin and porcelains.

MATERIAL AND METHOD:

Six materials were evaluated: CAD/ CAM blocks (feldspathic-ceramics (CerecBlocks) , glass-ceramic (1PS-e-max), resin based hybrid-ceramic (CeraSmart), direct composites microhybrid (CharismaClassic), nanohybrid (CharismaDiamond), nanoceramic Ceramxone). Forty specimens (2mm thickness, 10x10mm dimensions) were prepared from each composite. Forty specimens (12×14×2mm3) were milled from each CAD/CAM material. Specimens were polished with fine and ultra fine grit papers. Pretreatment color and surface roughness measurements were performed with spectrophotometer, profilometer respectively. The specimens of each material were randomly divided into 4 groups(n=10). Each group were air-polished except control group After air-polishing, 10 specimens of each group were treated with soflex, other 10 specimens with rubber for repolishing. Post-treatment groups were measured for recording final color and surface roughness values. Color changes were determined by CIE L*a*b* system. Data were analyzed with ANOVA, followed by Scheffe test(alpha=.05).

RESULTS:

No significant differences were found among the surface roughness values of test groups for feldspathic and glass ceramic ($p > .05$). The highest surface roughness values were recorded in air-polished groups among the other groups ($p < .05$). Color change in test groups was not clinically perceiveable ($(\Delta E < 2.6)$.Conclusion: After air-polishing, repolishing should be applied for microhybrid, nanohybrid compoites and resin based hybrid-ceramic. Soflex polishing kit might be used for air-abraded microhybrid composite repolishing.

DOES ZIRCONIA SINTERING PROCESS AFFECT THE FIT OF MONOLITHIC-3-UNIT BRIDGE?

Sayin Bahar

Friday, September 14th 9:15

Coauthors:	Albayrak, Haydar		
	Temizkanli, Ozan		

OBJECTIVE:

Manufacturers recommend different zirconia sintering procedures, called as speed, slow, and standard, include different maximum temperatures and sintering times. We aim to find out the effect of the sintering procedure on the marginal and internal adaptation of monolithic-3-unit bridge.

METHODS:

Mandibular first premolar and first molar artificial tooth were prepared in a jaw model (Frasaco) and duplicated as a metal die model (Fig. 1). The metal die was scanned in an extraoral scanner. Zirconia monolithic 3-unit bridge was designed for the die by using the CAD software(cement space:55µm). Designed restorations were milled from two different zirconia blocks [Zirkonzahn Prettau(ZP), Zirkonzahn Ice Translucent(ZIT)], colored, and randomly divided to be used in the sintering procedures. ZP-slow, ZP-standard, ZIT-speed, and ZIT-standard were sintered(n=10) according to the manufacturer's protocol. Cross-sectional images of the silicon replica were obtained from the premolar (buccolingual, mesiodistal) and the molar (two buccolingual, mesiodistal) preparations under a stereomicroscope. The thickness of the low viscosity light body was measured at pre-determined points (Fig. 2). Mean marginal and internal gap values obtained from different sintering procedures were analyzed with ANOVA (Tukey's, $p<0.05$). Independent sample t-test was applied for additive block comparison.

RESULTS:

All marginal gap measurements were under the 120µm. ZP-slow had the minimum value (44.01±2.70) in marginal gap among the all groups. The lowest and the highest value in internal gap was observed in ZP-standard (105.78±3.99) and ZIT-speed (121.48±7.26), respectively. One-way ANOVA indicated that there were statistical differences in the marginal and internal fit (Fig. 3). However, sintering process had no statistically significant effect on the fit. ZP showed significantly lower gaps than ZIT according to the independent sample t-test($p<0.01$).

CONCLUSIONS:

Block type affected the fit of the monolithic 3-unit zirconia bridge. In addition, all of the bridges manufactured by four different sintering procedures were in the clinically acceptable range.

INFLUENCE OF RETRACTION AGENTS ON SURFACE ROUGHNESS, COLOR STABILITY AND MICROHARDNESS OF DENTINE SURFACE

Seçkin, Özge

Friday, September 14th 9:00

Coauthors:	Sayin Ozel, Gulsum		
	Akin, Ceyda		

BACKGROUND:

Retraction agents have been used clinically in dentistry for many years to control bleeding and retracting the gingiva. And they are in contact with various dental materials, dentine and enamel. However, this agents may effect the dentine surface. The aim of this study was to evaluate the physical properties of dentine surface contaminated with three different retraction agents.

MATERIAL AND METHOD:

36 human upper molar teeth were embeded to an acrylic resin blocks, and then split horizontally from the enamel dentin juntion region. Totally 36 dentin slice specimens were prepared with a 1.5mm thickness and polished to make the surface flatter and smoother. This specimens were randomizelly seperated 3 groups and contaminated with three different retraction agents- Viscostat- Ultradent, Viscostat Clear-Ultradent and Astringent retraction Paste-3MEspe) (n=12) for 3 min and then rinsed for 20 sec and dried. All the specimens Surface Roughness was evaluated with profilometer(Mitutoyo Surftest SJ-201, Tokyo Japan)and Ra values were recorded, Vickers microhardness was measured using a Struers Duramin hardness microscope (Struers, Copenhagen, Denmark) and Color stability were evaluated with CIELAB spectrophotometry for each group before and after the contamination of retraction agents.

RESULTS:

There were significantly difference between the Ra values of the groups ($p<0.05$). Especially color stability was influenced by storage time. The contents of the retraction agents may cause the difference.

CONCLUSION:

Contamination by retraction agents affected the physical properties of dentine surfaces hence this could effect the longevity of the restorations.

SOL-GEL DERIVED BIOACTIVE COATINGS ON ZIRCONIA ENHANCE BIOMECHANICS OF SOFT-TISSUE ATTACHMENT

Shahramian, Khalil

Friday, September 14th 9:30

Coauthors:	Abdulmajeed, Aous	Gasik, Michael	
	Kangasniemi, Ilkka	Närhi, Timo	

OBJETICVES:

The purpose of this study was to evaluate the mechanical properties of the attachment apparatus between gingival tissue and TiO2 coated zirconia, aimed to be used as an implant abutment material.

METHODS:

Experimental cylindrical zirconia implants (2 mm diameter x 10 mm) were used in two experimental groups (n=4) with sol-gel derived TiO2 coated and uncoated (control). Full thickness gingival explants were dissected from mandibles of freshly slaughtered pigs using a 6 mm biopsy punch and then rinsed in PBS supplemented with penicillin, streptomycin and amphotericin B. Each of the implants was autoclaved for 20 min at 121ºC and then inserted into the centre of the explants, following placement of the specimens individually at an air/liquid interface on a stainless steel grid, in wells containing Eagle's minimum essential medium supplemented with antibiotics and essential amino acids. The specimens were incubated at 37ºC in a 5 % CO2 environment with the culture medium changed every 24 h up to 7 and 14 days in culture. The dynamic modulus and creeping modulus of the interface between the gingival tissue and the implants in shear mode were measured using a novel technique in dynamic mechanical analyser (DMA 242E Artemis, Netzsch).

RESULTS:

Coated zirconia specimens showed substantially higher dynamic modulus under physiological conditions (30 µm amplitude at 1 Hz) compared to uncoated control at both days 7 (+88% vs. control) and 14 (+109%). Under creeping conditions (pseudo-static) the modulus of adhesion was also improved for the coated specimens at both days 7 (+5%) and 14 (+55%).

CONCLUSIONS:

Sol-gel derived TiO2 coatings on zirconia were proven to enhance soft tissue attachment, forming a stronger adhesion between the gingival tissue in contact with TiO2 coatings especially under physiological dynamic loading.

DOES ZIRCONIA SINTERING PROCESS AFFECT THE FIT OF MONOLITHIC-SINGLE-UNIT CROWNE?

Temizkanli, Huseyin Ozan

Friday, September 14th 9:45

Coauthors:	Albayrak, Haydar		
	Sayin, Bahar		

OBJECTIVE:

Zirconia as a material has developed through the years and different methods for sintering procedures were identified like speed, slow, and standard, regarding the changes in their maximum temperatures and sintering times. The aim of this study was to evaluate marginal and internal adaptations of monolitic single zirconia crown that producted with different sintering proedures.

METHODS:

Mandibular first molar typodont tooth was prepared in a jaw model (Frasaco)and a master metal die model was created (Fig. 1). After scanning the die in a 3D extraoral scanner, zirconia monolithic crown design was made by using the CAD software (pre-cement space:55µm). Three different zirconia blocks [Wieland Zenostar (WZ), Zirkonzahn Prettau(ZP), Zirkonzahn Ice Translucent(ZIT)] were milled, colored appropriately, and randomly divided for sintering procedures. WZ-speed, WZ-standart, ZP-slow, ZP-standard, ZIT-speed, and ZIT-standard were sintered (n=10) according to the manufacturer's protocol.Internal and marginal gaps were measured with silicone replica method on stereomicroscope(a mesiodistal and two buccolingual crossectional images) .Thickness lengths of low-viscosity silicone representing marginal and internal gap values were measured at pre-determined points (Fig. 2).For each group an Independent sample t-test was used for the analysis (p<0,05).

RESULTS:

All marginal gap values were below 120µm. The highest internal gap was observed in ZIT-speed (163,88± 36,41), the lowest was ZP-standard (110,02±18,87) (fig. 3). There was statistical difference marginally; between ZP standard–ZP slow(p<0.05), but there was not any statistical difference in other groups(p<0.05) (Fig. 3). The lowest marginal gap scores were observed in WZ-speed (53,91±18,16), and the highest was ZIP-speed (95,78±24,51). None of the internal gap scores were significantly different according to the independent sample t-test (p<0.05).

CONCLUSIONS:

Monolithic single unit zirconia crowns produced with different sintering procedures were clinically acceptable .

ORAL PRESENTATIONS

Fixed prosthodontic

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ASLAN	YILMAZ UMUT	Turkey	CLinical Evaluation of 2 different CAD/CAM Inlay-Onlays as a split-mouth study: 1-year clinical follow up.		Sep 14th 10:30	Botella Room
GONZÁLEZ-BONILLA	MARIO	Spain	Fixed Dental Prostheses with Vertical Preparation´s Clinical Behavior: Retrospective Study.		Sep 14th 10:45	Botella Room
KARAER	OGUZCAN	Turkey	Periodontist and Prosthodontist-Centered AestheticPerception For CAD/CAM Chair Side All Ceramic Restorations In The Anterior Maxilla.		Sep 14th 11:30	Botella Room
KÜÇÜK	CEREN	Turkey	Clinical performance of porcelain laminate veneers for up to 20 years.		Sep 14th 11:45	Botella Room
SAGLAM	GAYE	Turkey	Marginal Adaptation and Fracture Strength of Endocrowns with Different Materials.		Sep 14th 12:00	Botella Room
TANNER	JOHANNA	Finland	Zirconia single crowns and multiple-unit FDPs – an up to 8 year retrospective clinical study.		Sep 14th 12:15	Botella Room

CLINICAL EVALUATION OF 2 DIFFERENT CAD/CAM INLAY-ONLAYS AS A SPLIT-MOUTH STUDY: 1-YEAR CLINICAL FOLLOW-UP

Aslan, Yilmaz Umut

Friday, September 14th 10:30

Coauthors:	Coşkun, Elif		
	Özkan, Yasemin		

OBJECTIVE:
The aim of this prospective clinical split-mouth study was to evaluate the clinical performance and compare the marginal adaptation of inlay-onlay restorations made of a lithium-disilicate glass-ceramic and hybrid ceramic CAD/CAM blocks over a 1 year period.

MATERIALS AND METHODS:
A total of 60 inlay-onlay restorations were placed in 14 patients including 30 lithium disilicate glass ceramic (IPS e.max CAD, Ivoclar Vivadent, Schaan, Liechtenstein) and 30 hybrid ceramic CAD/CAM blocks (Cerasmart, GC, Leuven, Belgium). The restorations were assigned to two groups according to the materials used. Clinical evaluations were performed after 1 week, 6 months and 1 year of cementation process according to the modified United States Public Health Services (USPHS) criteria, gingival and plaque indexes. The marginal quality analysis of sixteen samples were assesed under a SEM regarding morphological changes. The data were analyzed by using Friedman, Wilcoxon Signed Ranks, Chi-square, Independent samples and Paired t tests ($p<0.05$).

RESULTS:
No statistically differences between the two materials were found at any time. After 1 year, total survival rates of all-ceramic restorations were 100%. Regarding stereomicroscopic evaluation of IPS e.max CAD and Cerasmart groups of this study, continuous margin percentages in both ceramic-cement and enamel-cement interfaces decreased, but these results were not statistically significant ($p>0.05$).

CONCLUSIONS:
Based on the 1-year data, both all-ceramic systems can be considered reliable treatment options for posterior inlay onlay restorations.

KEYWORDS:
CAD/CAM, hybrid ceramic, split-mouth, SEM, clinical evaluation.

FIXED DENTAL PROSTHESES WITH VERTICAL PREPARATION'S CLINICAL BEHAVIOR: RETROSPECTIVE STUDY

González-Bonilla, Mario

Friday, September 14th 10:45

Coauthors:	Salido, María P.		
	Berrendero, Santiago		

In the last years, vertical or non-finish line dental preparations for fixed prosthetics have been taking center stage and are beginning to substitute the classic finish lines. In spite of this, there are not many studies to support the use of these preparations.

The general objective of this study has been to retrospectively evaluate the clinical behavior of cemented Fixed Dental Prostheses (FDPs) prepared without finishing line in a private practice after 5 years of clinical service.

MATERIAL AND METHODS:

105 FDPs cemented between 2011-2013 where analyzed in 29 patients. 62 of the abutments were metal-ceramic and 43 zirconia-based. Two calibrated examiners evaluated the presence of decay, the periodontal parameters such as Gingival Index (GI), Plaque Index (PI), Probing, and Marginal Index (MI) also the California Dental Association (CDA) criteria for Crowns and Fixed Partial Prosthodontics (CFPP). Statistical analysis was preformed using Descriptive Statistics.

RESULTS:

No decay was found in the abutment teeth of the FDPs. Regarding the periodontal parameters, 54% of abutment teeth presented a normal gingiva, 37% mild inflammation, 14% moderate inflammation. The PI showed 97,45% of the FDPs free of plaque. 97,14% had pockets from 0-3mm and 2,86% from 4-6mm. 86,43% of restoration margins were subgingival, 8,34% leveled with the gingival margin, 3,83% supragingival. According to CDA criteria for CFPP an Excellent classification resulted in 97,14% of the FDPs. Ceramic fracture was observed in 2,86% of the Abutment Teeth.

CONCLUSIONS:

The FDPs cemented on vertical prepared teeth present an adequate behavior after 5 years of clinical service, both on the restorations and periodontal health.

KEYWORDS:

Tooth Preparation, Prosthodontic, Dental Prosthesis Design, Crown, Denture, Partial, Fixed, Retrospective Study.

PERIODONTIST AND PROSTHODONTIST-CENTERES AESTHETIC PERCEPTION FOR CAD/CAM CHAIR SIDE ALL CERAMIC RESTORATIONS IN THE ANTERIOR MAXILLA

Karaer, Oguzcan

Friday, September 14th 11:30

Coauthors:	Agan, Hatice	Serdar, Muhittin	
	Kurgan, Sivge	Terzioglu, Hakan	

OBJECTIVES:

Over the past 25 years, in-office computer-aided design/computer-aided manufacturing (CAD/CAM) technology has continued its evolution as a highly accurate and efficient means of dentistry. CAD/CAM approach has been introduced in dentistry as a precise, efficient, accurate and error-free tool to produce high-quality dental restorations.
Treatment considerations of an aesthetic restoration include shape and shade matching of the crown, interdental spacing, contacts of the opposing dentition, parafunctional habits, and esthetic desires of the patient.
The aim of this study is to investigate periodontist and prosthodontist-centred aesthetic outcomes for CAD/CAM chair side all ceramic restorations in the anterior maxilla.

MATERIALS AND METHOD:

5periodontotist and 5prosthodontist assessed esthetic outcomes of 12 CAD/CAM chair side all ceramic restorations. 5peridontal soft tissue parameters were measured using pink esthetic score: mesial papilla presence, distal papilla presence, curvature of facial mucosa, level of facial mucosa,root convexity/soft tissue color and texture; as well as the six crown parameters were measured using white esthetic score: tooth form, tooth volume/outline, color(hue/value), surface texture, and translucency. Data are presented as median(25-75). The comparison between average values was performed using Mann Whitney Utest. Intra-group comparisons were performed using Friedman test.

RESULTS:

The average PES value for the periodontists was 7.0(6.0-8.6), whereas the average WES value was 8.0(6.8-10.0). The average PES value for the prosthodontists was 7.0(5.0-8.6), whereas the average WES value was 6.0(5.0-7.6).WES values were statistically significantly higher in periodontists' evaluations then prosthodontists ($p=0.048$). There was no significant difference in PES values.The difference between peridontists($p<0.05$) and the difference between prosthodontists($p<0.05$) in the intra-group comparison were significant for PES and WES.

CONCLUSION:

The assessor degree of specialization affected the esthetic evaluation with WES but not PES. Periodontists were identified to provide more favorable ratings than prosthodontists while prosthodontists were most critical in this study.

KEYWORDS:
Computer-aided design, dental porcelain, Pink esthetic score (PES), white esthetic score(WES), all ceramic restorations.

CLINICAL PERFORMANCE OF PORCELAIN LAMINATE VENEERS FOR UP TO 20 YEARS

Küçük, Ceren

Friday, September 14th 11:45

Coauthors:	Aslan, Yilmaz Umut	Özkan, Yasemin	
	Uludamar, Altay		

PURPOSE:

The purpose of this clinical retrospective study was to evaluate and analyze the long-term success, clinical performance and survival rate of porcelain laminate veneer restorations (PLVR) placed both in the anterior and posterior segments for a period of up to 20 years.

MATERIAL AND METHODS:

All PLVR were planned, prepared and bonded on maxillary and mandibular anterior and posterior teeth in two private offices and one university by three experienced clinicians between 1996 and 2014. PLVR were examined for the following parameters; color and esthetic values (esthetic evaluation), fracture rate, marginal discoloration (staining of the luting cement), marginal integrity including caries (clinical evaluation). For clinical and esthetic evaluations, modified California Dental Association (CDA) /Ryge criteria was used. The success rate was determined by a Cox regression analysis.

RESULTS:

The mean observation time was 8.33±4.85 years. The probability of survival of the 413 veneers was 99.9 % after 5 years, 95.3 % at 10 years, 92.6 % at 15 and 90.3 % at 20 years with very low clinical failure rate (approximately 0.6%).

CONCLUSIONS:

PLVR represent successful survival rate probability of 95.3 % over 10 years. Porcelain veneers must be prepared and bonded with a correct adhesive technique to reach this successful survival rate.

MARGINAL ADAPTATION AND FRACTURE STRENGTH OF ENDOCROWNS WITH DIFFERENT MATERIALS

Saglam, Gaye

Friday, September 14th 12:00

Coauthors:	Cengiz, Seda		
	Karacaer, Özgül		

OBJECTIVE:

The objective of this study is to evaluate marginal adaptation and fracture strength of mandibular molar endocrowns manufactured with different ceramic based restorative materials by CAD/CAM and heat-pressure technique.

METHODS:

Mandibular first molar teeth (N=50) were endodontically treated and divided into five groups (n=10). Endocrowns were obtained from lithium-disilicate glass-ceramic ingots (GEP) by hot-press technique and feldspathic blocks (GC), polymer-infiltrated ceramic network blocks (GE), lithium-disilicate glass-ceramic blocks (GEC), zirconia-reinforced glass-ceramic blocks (GS) by CAD/CAM technique. Restorations were semented with dual-polymerized resin cement and then subjected to thermocycling (5-55°C, 6000 cycles). Marginal adaptation evaluated under scanning electron microscope at 200x magnification. Fracture stength test of specimens were done at Universal Test Machine with a speed of 1mm/min. Failure modes evaluated under stereomicroscope. Statistical analyzes of data were performed. Kruskal-Wallis test was used to determine for differences between groups for marginal adaptation and fracture strength.

RESULTS:

Statistically significant difference was observed between groups in terms of marginal adaptation (p=0.001). Highest marginal discrepancy values were found in GEP. There was no significant difference between other four groups (p>0.05). Statistically significant difference was observed between groups in terms of fracture strength (p=0.019). Among five groups, the higher fracture strength values were obtained from GEC, the lowest fracture strength values were obtained from GC.

CONCLUSION:

It is concluded that endocrowns manufactured with CAD/CAM show better marginal adaptation and lithium-disilicate endocrowns have higher fracture strength values. The failure mode was mainly fracture extending to root.

KEYWORDS:

Endocrown, CAD/CAM, Marginal adaptation, Fracture strength.

ZIRCONIA SINGLE CROWNS AND MULTIPLE-UNIT FDPS - AN UP TO 8 YEAR RETROSPECTIVE CLINICAL STUDY

Tanner, Johanna

Friday, September 14th 12:15

Coauthors:	Niemi, Henrika	Tolvanen, Mimmi	Hjerppe, Jenni
	Ojala, Essi	Närhi, Timo	

PURPOSE:

Aim of this retrospective clinical study was to evaluate the survival and the outcome of technical and biological complications of zirconia crowns and fixed dental prostheses made in the student clinic of Turku University, Finland, between April 2009 and October 2016.

MATERIALS AND METHODS:

23 patients (17 female, 7 male) had received zirconia crowns and multiple-unit FDPs in maxilla and participated in the follow-up investigation. Mean age of patients was 64,6 years. Of the 40 restorations, 17 were single crowns and 23 fixed partial dentures. Twenty-seven restorations were anterior and 13 posterior. On the follow-up examination restorations were investigated according to modified USPHS criteria. For statistical analysis chi-square test, Mann-Whitney U-test and Wilcoxon signed ranks tests were used.

RESTULS:

One posterior single crown was lost due to a vertical root fracture of the abutment tooth and one FDP showed a framework fracture. Survival rate of zirconia restorations after 2 to 8 years (average 5.7 years) of clinical use was 95 %. Survival rate for single crowns was 94.2% and for FDPs 95.7% respectively. Veneering ceramic fractures were detected in 12% of all cases (0% for crowns and 22% for FDPs). Complication rate was 26% for FDPs and 5.8 % for crowns.

Bleeding on probing was present in 38.1% of restorations and 13.9% in control teeth. Embrasure space was found insufficient in 52% of zirconia FDPs and 81% of these restorations showed elevated BOP values. Conclusions: Single crowns and FPDs with a zirconia framework showed good survival in this retrospective follow-up study. Chipping of veneering ceramic and bleeding on probing of marginal gingiva were the most common complications. Thick connector areas made according to material demands resulted in insufficient embrasure spaces and inflammations of marginal gingiva.

KEYWORDS:

zirconia, clinical study, FDP, single crown.

ORAL PRESENTATIONS

Implantology

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
AYVALIOğLU	DEMET ÇAğIL	Turkey	Correlation Between Precise Fit and Screw Loosening Proccess at Bar Retained Overdentures : An In Vitro Study.		Sep 14th 9:30	Botella Room
FORNA	NORINA CONSUELA	Romania	Clinical Applications of Robotized Implanto-Prosthetics.		Sep 14th 9:45	Botella Room
GUNDAL	MERVE CENNET	Turkey	CLinical outcomes of Two-Implant-Retained-Mandibular overdentures: An observational study.		Sep 14th 10:00	Botella Room
GUNES UNLU	DAMLA	Turkey	Evaluation of stress distribution in "All-On-Four" concept with FEA.		Sep 14th 10:15	Botella Room

CORRELATION BETWEEN PRECISE FIT AND SCREW LOOSENING PROCCESS AT BAR RETAINED OVERDENTURES: AN IN VITRO STUDY

Ayvalıoğlu, Demet Çağıl

Friday, September 14th 9:30

Coauthors:	Gökçen Röhlig, Bilge		

PURPOSE:

The purpose of the present study is to evaluate the correlation between the marginal gap and screw loosening of conventionally fabricated cast bars, and CAD/CAM bars, and also investigate the effect of the alterations in the CAD/CAM proccess chain on precise fit and consequently on screw loosening.

MATERIALS AND METHODS:

In this study, four implants were applied to a mandibular phantom model and three different production techniques (conventional, CAD/CAM one scan multiple production, CAD/CAM one scan per production) were used to fabricate 30 bar frameworks with different mean marginal distance values. Each bar sample was placed on the master model and retaining screws were tightened. Each bar specimen was subjected to a cyclic fatigue force of 0.5mm/min medially of the bar frameworks 10, 1460, 4380 and 7300 times to imitate the utilization of the bars in try-outs,1 year, 3 years and 5 years' time and the detorque values were calculated with a mechanical torque device that allows to read the residual torque values in N/cm. A Newman Keuls multiple comparison test, a Tukey multiple comparison test and Pearson Correlation tests were applied to the data with a level of significance of $p<0.05$.

RESULTS:

Evaluating the the torque values and marginal gap relation, the most significant difference occured at the 1. And 4. Implants in Group 1, and 2. And 3. Implants in Group 2, while no significant difference occured in Group 3. The total torque loss in Group1 at bar abutments were found %40, in Group 2 %48 and in Group 3 %42.

CONCLUSIONS:

There had been a negative correlation between the marginal gap and the torque values.

KEYWORDS:

CAD/CAM, Bars, Screw-Loosening.

CLINICAL APPLICATIONS OF ROBOTIZED IMPLANTO-PROSTHETICS

Forna, Norina Consuela

Friday, September 14th 9:45

OBJECTIVE:
The objective of the present study is to identify the accuracy of the robotized systems used in implantology and prosthodontics in which concerns the implant's position and its axis of implantation, related to the optimal bone structure and the optimal occlusion. Methods: We evaluated the robotized and classical techniques used for a number of 325 patients treated by implants and prosthodontics; we compared the treatment plans designed using the regular CTs (115 patients) with the treatment plans designed using the RoboDent assistance software (210 patients). The patients were evaluated 4 months after implantation for the accuracy of implantation in the bone support compared with the preliminary plan.

RESULTS:
In the case of the classical method we found a percentage of 12.7% patients with significant differences between the preliminary plan and the implants position at 4 months; in the case of the computer-assisted method the percentage of patients with similar problems was significantly decreased (only 3.2%). The precision in finding the ideal position for an optimum implantation axis reduces the angulation of the implant abutment and therefore gets a correct occlusion ensuring the long-term success of the prosthetic restoration.

CONCLUSIONS:
Navigation in implantology as any other type of navigation, in the medical field, gives an accurate picture in real time execution avoiding any future risks and failures.
Planning will track the implants and will create a treatment plan according with the needs of rehabilitation.

KEYWORDS:
Dental implant, Prosthodontics.

CLINICAL OUTCOMES OF TWO-IMPLANT-RETAINED-MANDIBULAR OVERDENTURES: AN OBSERVATIONAL STUDY

Gundal, Merve Cennet

Friday, September 14th 10:00

Coauthors:	Albayrak, Haydar	Gumus, Hasan Onder	
	Sener, Ayse		

Long time studies that related to implant retained mandibular overdenture (MOD) are limited in the literature.The aim of this study was to evaluate oral health related quality of life (OHQoL) of patients treated with two implant retained mandibular overdenture and gather information about trouble related to implant retained MODs after long time usage.

MATERIALS-METHODS:

Patients treated with two locator retained MOD at the Erciyes University Department of Prosthodontics between 2008 and 2012 were invited to the intraoral examination in May 2013.The OHQoL of invited patients were tested first time with Turkish version of the oral health impact profile 14 questionnaire (OHIP-14). Sociodemographic data, type of implant (tissue or bone level) and periods of edentulism were recorded.The same patients were recalled to the clinic after 5 years.OHIP-14 was conducted to all patients second time. Furthermore implant loss, periimplantitis, problems with the locator system and prostheses were observed and recorded.The average observation time was 6.5 years. Independent samples t-test and Paired samples t-test for binary comparisons were used as statistical analysis.

RESULTS:

OHIP total score means of implant-retained MOD users was '5.4'. Paired samples t-test showed that no statistically significant difference was found between first OHIP total scores and second OHIP total scores.There was a statically significant difference between tissue(7,6) and bone(3,9) level implant OHIP scores. Patients with tissue-level implants had higher second OHIP total scores and these patients were less satisfied.There was no statistically significant difference between periods of edentulism and all OHIP total scores.In patients, failure of implant(%5), peri-implantitis(%7,5), nylon replacement(once every 3 years), screw loosening(%7,5), visible locator wear(%7,5) and matrix replacement(%35) was observed.

CONCLUSION:

All patients were satisfied with their own prosthesis after long time usage when low OHIP scores considered.

KEYWORDS:

Questionnaires,Patient Satisfaction, Prostheses and Implants.

EVALUATION OF STRESS DISTRIBUTION IN "ALL-ON-FOUR" CONCEPT WITH FEA

Gunes Unlu, Damla

Friday, September 14th 10:15

Coauthors:	Kilic, Kerem		

Implant treatment of edentulous arches can be complicated because of certain problems such as low bone quality in posterior region, insufficient bone volume as a result of long term edentation and anatomic limitation of alveolar bone. "All-on-four" concept has been developed to overcome such limitations. "All-on-four" treatment concept consists of a full arch fixed prosthesis anchored with four implants in either the maxilla or mandible. The aim of this study is to evaluate the stress designed with 3 different implant angle at posterior region (15,30,45) and 3 different cantilever length(7-10-14mm) with the use of 'All-on-four' concept on implant, surrounding bone and prosthesis with 3-D finite element analysis in completely edentulous maxilla.

Sub-structures prosthesis are formed by using Cr-co materials in the form of prepared teeth .Suprastructure prosthesis is modelled as monolithic zirconia crowns. 2 implant placed in anterior region(12,22)and 2 implant placed posterior region(15,25) with 10mm height and 4.1mm ratio(straumann BLT).

A force of 300 N load was applied with a 30-degree angle to the occlusal plane from the lingual side, on the buccal cusps of first molar teeth.The maximum and minimum principal stress values and distrubitions were evaluated and compared in cortical and cancellous bone and the values of von Mises stress and stress distrubitions were evaluated on implants, abutments, screws, frameworks and crowns.

The results of the study showed that an increase in the cantilever length and implant angle increased the tensile and compressive stresses in cortical bone and also increased the von Mises stress on implants.

KEYWORDS:
Dental Prosthesis, Implant-Supported, Finite Element Analysis

ORAL PRESENTATIONS

Interdisciplinarity

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	Code	FROM	ROOM
CELEBIC	ASJA	Croatia	Mini dental implant failures in removable dentures: a retrospective study.		Sep 14th 13:00	Grados Room
GROSS TRUJILLO	ESPERANZA	Spain	Behavior of fibroblasts on different surfaces after bioactivation treatments.		Sep 14th 13:15	Grados Room

MINI DENTAL IMPLANT FAILURES IN REMOVABLE DENTURES: A RETROSPECTIVE STUDY

Celebic, Asja

Friday, September 14th 13:00

Coauthors:	Kovacic, Ines	Poljak Guberina, Renata	
	Kranjcic, Josip	Persic Kirsic, Sanja	

OBJECTIVES:

To identify reasons for mini dental implant (MDI) failure used for retention of removable overdentures.

METHODS:

A total of 324 patients with complete or partial MDI retained removable overdentures (4, 3 or 2 MDIs) participated. Respective patients wore dentures 2 to 10 years. Patients were advised to come for a control exam once a year or anytime when having problems. Modified plaque index, bone resorption at MDI site, matrix loosening, o-ring wear, denture stability and mucosa thickness of the denture-bearing area were observed.

RESULTS:

A total of 978 MDIs were loaded and 68 (6.9%) MDIs failed during denture wearing. Two MDIs (2.9%) were broken after traumatic head injury (patient fainted). Flabby ridge or oral mucosa thicker than 3.5 mm posteriorly, with denture subsidence under masticatory loads caused 51 MDIs failures (fracture or loosening: 75%), one patient was a severe bruxer (2 MDIs, 2.9%). Due to unstable denture (patient did not come for a recall and denture was not relined when needed) 7 MDIs (10.2%) failed and because of a lack of oral hygiene only 6 MDIs (8.8%) were lost (periimplantits). Modified plaque index had median value 1; 16 matrices loosened; 98 O-rings were changed, 30 dentures were relined. Most of MDIs showed no periimplant bone resorption.

CONCLUSION:

The most common reasons for MDI failure after loading were flabby ridge and/or unstable dentures. Flabby ridge removal and/or vestibuloplasty should be performed prior or during MDI insertion.

BEHAVIOR OF FIBROBLASTS ON DIFFERENT SURFACES AFTER BIOACTIVATION TREATMENTS

Gross Trujillo, Esperanza

Friday, September 14th 13:15

Coauthors:	Genova, Tullio		
	Pradies, Guillermo		

AIM:

To prove if different machined surfaces could enhance soft tissue adhesión Secondary aim was to analyze if any bio-activing treatment could enhance the reactivity of these surfaces.

MATERIALS AND METHODS:

One-hundred-five disks with five different surface topographies were selected: machined titanium grade IV and V (MAC), combed titanium(XA), Zirconium Sand-Blasted Acid Etched Titanium (ZT) and ultra thin machined titanium (UTM). 18 disks each group were divided in three subgroups: 1) argon plasma treatment (10 W, 1 bar for 12 min) in a plasma reactor, 2) ultraviolet (UV) light treatment for 2 h, or 3) no treatment (control group).

Three disks each group underwent SEM analysis to detect if any microscopical difference might be detected pre- and after treatment with UV and plasma

In order to evaluate biological response in vitro, the widely used osteoblastic human cell line SaOS-2 (ECACC, Salisbury, UK) and human fibroblasts were used.

Cell adhesion was evaluated on titanium samples at 2, 24 and 72h using a 48-well plate (BD, Milan Italy). Cells were detached using trypsin for 3 minutes, carefully counted and seeded at 3 × 103 cells/well in 100 µl of growth medium on the different samples.

Furthermore, cell morphology was evaluated by seeding cell on titanium disks at a concentration of 104 cells/well in a 48-well plate (BD, Milan Italy) and then kept in growth condition. Following the manufacturer's protocol, cells were stained with Rodhamine-Phalloidin (Life Technologies) and 1uM Dapi (Life Technologies) to respectively detect the cytoskeleton and the nuclei. Image acquisition was made recurring to a Nikon Eclipse Ti-E microscope with 40X objective (Plan Fluor Nikon).

Disks at different timepoints, underwent SEM analysis to better detect stratification and cell disposition.

RESULTS:

Different surfaces demonstrated different cell behavior: while undetermined position was highlighted in MAC grade 4, MAC grade 5and ZT, cells in UTM and XA samples finally disposed in the surface groves.

From a quantitative point of view, ZT surface demonstrated a significantly higher cell adhesion compared to the other groups at early stage. This difference tended to disappear when 24h and 72h samples were analyzed. This was probably due to a saturation effect.

On all different titanium samples, plasma treatment significantly increases the number and the spreading of adhered cells (Figure 1 and 2) at the early stage. However, this phenomenon tended to disappear when longer time-points were observed due to a saturation effect (Figure 3). On the other hand, SEM analysis revealed a better cell distribution and spreading mostly in disks treated with plasma of Argon and slightly in disks treated with UV compared to untreated samples.

CONCLUSIONS:

Within its limitations, this in vitro study highlighted the capability of grooved surfaces to attract and distribute cells.

At the same time, preliminary data showed potential biological benefits of treating implant surfaces with plasma of argon mostly at the early stage.

The positive reported outcomes encourage the use of micro-grooved surfaces and bio-activation in in vivo studies.

ORAL PRESENTATIONS

New Technologies

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
BENABDALLAH	MERIEM	Spain	10S True definition as a new tool to analyze the clinical performance of restorative materials.		Sep 13th 16:15	Botella Room
CARRASCOSA MILO	CARLOS	Spain	See through head mounted displays in digital workflow.		Sep 13th 16:30	Botella Room
COÞKUN	MEHMET EMRE	Turkey	TiO2 Nanotubes; As a Surface Treatment on Fix-Partial-Denture.		Sep 13th 17:20	Botella Room
HADDADI	YASSER	Denmark	Accuracy of crowns based on digital intraoral scanning compared to conventional impression - A split-mouth randomised clinical study.		Sep 13th 17:35	Botella Room
HRIPTULOVA STEMCOVSCAIA	OLGA	Spain	Comparative study of a traditional anesthesia technique and the use of electronic anesthesia.		Sep 13th 17:50	Botella Room
MICHELINAKIS	GEORGE	Greece	Full-Arch 10S Is Statistically More Accurate Compared to CBCT Cast-Scanning. An In-Vivo Study.		Sep 13th 18:05	Botella Room
MONTERO	JAVIER	Spain	CPC: An Interactive Method for Quantifying the Masticatory Efficiency.		Sep 13th 18:20	Botella Room
MORÓN CONEJO	BELÉN	Spain	Evaluation of Soft Tissues Volumetric Changes in PRAMA Implants (I.B.O.P.T.)		Sep 13th 18:35	Botella Room
POL	CHRISTIAAN	Netherlands	Three-Unit Implant-Supported Fixed Dental Prosthesis Using Intra-Oral Scanners Are Feasible.		Sep 13th 18:50	Botella Room

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
SEVMEZ	HATICE	Turkey	Effect of Surface Treatments on Shear Bond Strength of CAD-on-Systems.		Sep 13th 19:05	Botella Room
SIAVIKIS	GEORGIOS	Greece	Workflow for Computer-Guided Implant Surgery and Preservation of Emergence Profile.		Sep 14th 9:00	Botella Room

10S TRUE DEFINITION AS A NEW TOOL TO ANALYZE THE CLINICAL PERFORMANCE OF RESTORATIVE MATERIALS

Benabdallah, Meriem

Thursday, September 13th 16:15

Coauthors:	Urcelay Moreno, Nerea		
	SantaMaría LaOrden, Andrea		

A pilot study to analyze the clinical evaluation of the performance of a newly developed glass ionomer restorative material is being conducted.
The criteria that are being used to evaluate the placed restorations are based on the Peters et al. Clinical Performance Criteria: retention, fractures, surface staining, wear, postoperative sensitivity, caries associated with restoration and tooth integrity. Those are all subjective factors when analyzed visually.
The 10S True Definition3M is known to be able to detect microns of wear when overlapping the STL files of the scanned mouth, and this is objective information.
In this pilot study, regular check-ups are done to assess the clinical performance of the restorative material.

THE OBJECTIVES OF THE INVESTIGATION:

The aim purpose of this study is to compare and correlate the Peters et al. Clinical Performance Criteria analyzed visually with the same criteria analyzed through the 10S.

EXPERIMENTAL METHODS USED:

A post market clinical follow-up pilot study is performed to analyze the clinical performance of two glass ionomer materials for posterior restorations: Ketac Universal and Ketac Molar Quick. Forty adults have had two class 11 restorations done. It is prospective, controlled, randomized, split-mouth and has blinded evaluation.
The scoring and scanning of the restorations is made by two blinded evaluators at placement, 6-months, and every year up to 5 years.
The STL files obtained from the scanning are overlapped to analyze the evolution of the restorations.

ESSENTIAL RESULTS, INCLUDING DATA:

There is correlation between the visual analysis and scanning data. 10S True Definition is an accurate tool to evaluate the wear and anatomic changes in restorations.

CONCLUSION:

10S True Definition has proved to be a useful and objective source to analyze he clinical performance of restorative materials.

SEE THROUGH HEAD MOUNTED DISPLAYS IN DIGITAL WORKFLOW

Carrascosa Milo, Carlos

Thursday, September 13th 16:30

Coauthors:	Donato, Sandra	Pradies, Guillermo	
	Ferreiroa, Alberto		

INTRODUCTION:

Dentists and health professional are regularly on the lookout for new technologies that improves our daily practice and patient comfort and experience in the dental chair.
Digital workflow is now increasing its popularity through the use of digital magnification and intraoral scanning.
These separated devices require the use of independent heads-up display.
With the new prototype developed in the Master of Restorative Dentistry Based on new Technologies we can couple these different heads-up displays in a single see through head mounted display simplifying clinical processes bettering:
-Storage.
-Ergonomics.
-Comfort for both patient and doctor.

OBJECTIVES:

To test this new prototype in order to introduce improvements in the daily practice of dentists.

MATERIAL AND METHODS:

In this communication we introduce in our practice this prototype. Using both the scanner and the digital magnification, with a single plug and use "see through head mounted display" in an overlay restoration procedure testing this gadget on typodonts.

CONCLUSION:

The see through head mounted display is a good solution for problems such as storage, ergonomics and comfort, both for the patient and doctor.
Further research is required, mastering the use of the device may be challenging due to an important learning curve.

TIO2 NANOTUBES; AS A SURFACE TREATMENT ON FIX-PARTIAL-DENTURE

Coþkun, Mehmet Emre

Thursday, September 13th 17:20

PURPOSE:

Titanium is preferred as a framework because of the corrosion resistance, light weight and biocompatibility. It has been shown that TiO2 application improve the titanium surface in nanoscale. In order to increase the metal-ceramic bond strength sandblasting is the most commonly used method for providing mechanical retention. The aim of this study was to investigate the effect of TiO2 nanotubes application on titanium-ceramic bond strength.

MATERIAL AND METHODS:

Thirty commercially pure titanium cylinder specimens (12mm diameter, 10mm height) were polished with P0001-220 silicone polisher (NT1 silicone, Kerr) and divided into three groups according to the surface treatments. 1. group control group, 2. group sandblasted with 110 µm Al2O3 at 75 psi from a distance 20mm for 20 sec, 3. group was anodized at 20V to form TiO2 nanotubes. Ceramic (7mm diameter, 5mm) was applied onto the specimens according to the manufacture's instruction. Shear bond strength tests were performed using universal testing machine (Lloyd LF Plus, Ametek). The data was analyzed with One-way ANOVA and Tukey test.

RESULTS:

According to the results, the lowest shear bond strength was obtained in control group (7,23±1,6 MPa). Furthermore, TiO2 nanotube application (25,29±2,1 MPa) was found to be a more effective than sandblasting method (19,69±1,21 MPa) in order to increase ceramic bond strength. The difference between all groups were statistically significant difference (P<.05).

CONCLUSION:

Even if additional equipments are needed in the application process, the obtained higher bond strength made TiO2 nanotube application superior than sandblasting.

KEYWORDS:

TiO2, Titanium, Sandblasting.

ACCURACY OF CROWNS BASED ON DIGITAL INTRAORAL SCANNING COMPARED TO CONVENTIONAL IMPRESSION - A SPLIT-MOUTH RANDOMISED CLINICAL STUDY

Haddadi, Yasser

Thursday, September 13th 17:35

OBJECTIVES:

The aim of this prospective in vivo study was to evaluate the accuracy of the marginal and internal fit of crowns based on conventional impression (CI) or intra oral scan (IOS) in a randomised, split-mouth set-up.

MATERIALS AND METHODS:

Nineteen patients needing full coverage crowns, fitting a split-mouth design were provided with two lithium disilicate crowns; one based on a CI and one based on an IOS. The marginal and internal accuracy of the crowns were assessed with the replica technique and clinically using a modified California Dental Association (CDA) quality evaluation system.

RESULTS:

At the preparation margin the median gap was 60 µm for IOS and 78 µm for CI. For the other points, the median gap ranged from 91 – 159 µm for IOS and 109 - 181 µm for CI. The accuracy of the IOS was statistically significantly better at all point except at the cusp tip. All crowns where rated R or S at both the 6 and 12 months follow-up appointment. The results for the clinical evaluation with CDA for marginal integrity showed no statistically significant difference between the 2 impression methods at both the 6 and 12 months evaluation.

CONCLUSIONS:

Crowns based on IOS show statistically significantly better marginal and internal adaptation before cementation compared to conventional impression. However the clinical evaluation showed similar marginal adaptation.
Clinical relevance: Crowns based on a fully digital workflow can provide clinically acceptable marginal adaptation, comparable to crowns based on CI.

COMPARATIVE STUDY OF A TRADITIONAL ANESTHESIA TECHNIQUE AND THE USE OF ELECTRONIC ANESTHESIA

Hriptulova Stemcovscaia, Olga

Thursday, September 13th 17:50

Coauthors:	Berrendero Dávila, Santiago	Pradíes Ramiro, Guillermo	
	Salido Rodríguez-Manzaneque, Mari Paz		

INTRODUCTION:

New technologies and innovation are taking dentistry towards an increasingly innovative future where the professional is better prepared to give the patient a more precise diagnosis and solve their oral problems in a faster, less invasive and with maximum comfort. That is why something so common in our daily practice as anesthesia must be within our goals to improve, especially at the level of pain control and anxiety suffered by the patient.

METHODOLOGY:

The study is a randomized, single-blind, split-mouth clinical trial where a single operator performs the entire procedure. To perform the study, a sample size of forty patients was chosen where the same patient is test and control. Each patient underwent two injections in the same clinical session, one with conventional anesthesia and the other with the electronic anesthesia
The clinical trial was conducted in the university clinic of the Master of Restorative Dentistry Based on New Technologies at the Complutense University of Madrid and the procedure was approved by the university's ethics committee.
Subsequently, variables such as pain on the vas scale, time of the effect of anesthesia, pain during the procedure and patient preferences were evaluated through statistical tests.

RESULTS:

The average pain was 3.67 measured in the 1-10 VAS scale (SD of 1.55, range 1-7) for local anesthesia performed with traditional technique. In contrast, the average pain measured with the electronic anesthesia injection was 1.95 (SD of 0.81, range 1-4).
The t-test has been performed yielding a p-value of 0.000000000123. Therefore, we can state that there are statistically significant differences in the average pain between both methods, being greater the pain experienced with the conventional method.

CONCLUSIONS:

According to the results obtained, the injection of local anesthesia using the electronic anesthesia system significantly reduces pain and also reduces the latency time of anesthesia compared to the conventional technique.

FULL-ARCH IOS IS STATISTICALLY MORE ACCURATE COMPARED TO CBCT CAST-SCANNING. AN IN-VIVO STUDY

Michelinakis, George

Thursday, September 13th 18:05

Coauthors:	Apostolakis, Dimitrios	Kourakias, George	
	Pavlakis, Emmanuil		

There is not enough evidence in the literature regarding in-vivo accuracy of Trios Intraoral Scanner (IOS) and how it compares to CBCT scanning accuracy of plaster models. The purpose of this in-vivo investigation was to compare Trios IOS against CBCT cast scanning accuracy and also IOS accuracy between maxilla and mandible, anterior and posterior segments and left and right quadrants.
Following sample size calculation, 20 fully-dentate patients were enrolled in the study. Full arch maxillary and mandibular PVS impressions were acquired using metal stock trays and the dual mix technique. At the same appointment, a full arch maxillary and mandibular IOS was obtained using the Trios color Pod. The impressions were cast using a type IV gypsum and subsequently scanned using a Planmeca Promax 3D Mid CBCT scanner. The casts were also scanned in a Desktop Scanner for reference (7series, Dental Wings). DICOM files from the CBCT device were converted into stl files using the BlueSkyPlan software (BlueSkyBio) . The .stl files from the CBCT and IOS device were compared for accuracy against the reference .stl files from the Desktop Scanner using a 3D surface measurement software (Cloudcompare). Statistical analysis was carried out using SPSS software.
Overall, Trios had a smaller error (median = 39μm) than CBCT (median = 62μm), a statistically significant difference between the 2 modalities ($z=-4.6$, $p<0.005$). Concerning the Trios, the anterior teeth presented with a smaller error (42±16μm) as opposed to the posterior teeth (47±16 μm), a significant difference ($t(39)=-2.4$, $p=0,019$). There were no significant differences in IOS mean accuracy between maxilla and mandible or between left and right quadrants.
Full arch digitization using the Trios IOS is significantly more accurate compared to CBCT scanning of the relevant plaster models. Anterior teeth IOS is statistically more accurate compared to posterior teeth IOS using the Trios scanner.

KEYWORDS:
Intraoral Scanner, Accuracy, CBCT

CPC: AN INTERACTIVE METHOD FOR QUANTIFYING THE MASTICATORY EFFICIENCY

Montero, Javier

Thursday, September 13th 18:20

Coauthors:	Leiva, Luis Alberto	Martín-Quintero, Inmaculada	
	Villegas, Mauricio	Barrios, Rocío	

OBJECTIVES:

This study aims to validate our Chewing Performance Calculator (CPC) software, a new method for measuring the masticatory efficiency by analyzing the mixing ability of bi-colored chewing gums in an interactive setting.

METHODS:

100 participants were consecutively recruited from the Faculty of Dentistry of the University of Granada. The masticatory efficiency (ME) was determined by using bi-colored chewing gums (Smint Kiss® 3) that were chewed in 20 strokes. The chewed gum was crushed between two transparent glass tiles, creating a 1mm specimen that was subsequently scanned and edited with Adobe® Photoshop™ to calculate the mixed-color area in a percentage format, as denoted by Schimmel et al. (gold standard method, GSM). All the scanned pictures were also analyzed with CPC, which is a web application that takes as input the picture of the chewed bolus enclosed in a custom platten, and allows the practitioner to select interactively three parts of the picture: the platten, the background, and the mixed color fraction.
Then, the application computes the ME, also in percentage format. Finally, a simple oral examination assessed the number of occlusal units for the criterion validity (using Pearson's correlation coefficients). The time spent in each optical evaluation was collected.

RESULTS:

The average ME was 3–100% (CI95%: 82.8–88.1%) with the GSM, and 1.8–99.2% (CI95%: 60.6–66.4%) with CPC. The time spent in calculating the ME was found to be significantly higher with the GSM (346.3–421.6s) than with CPC (42.2–46.6s); t(99)=24.50, p<.001. Both methods were significantly correlated between each other (r=0.59, p<.001) and also with the number of occlusal units, being stronger the correlation coefficient of CPC (r=0.48, p<.001) than GSM (r=0.38, p<.001).

CONCLUSIONS:

The new CPC software is an ecologically valid and easy-to-use method for assessing the masticatory efficiency when a two-colored bolus is used.

KEYWORDS:

Mastication; Masticatory Efficiency; Mixing Ability Tests; Chewing gum.

EVALUATION OF SOFT TISSUES VOLUMETRIC CHANGES IN PRAMA IMPLANTS (I.B.O.P.T.)

Morón Conejo, Belén

Thursday, September 13th 18:35

Coauthors:	Salido Rodríguez-Manzaneque, María Paz	Pradíes Ramiro, Guillermo	
	Sanz Sánchez, Ignacio		

INTRODUCTION:

The Biologically Oriented Preparation Technique (B.O.P.T.), without finishing line, has emerged in recent years due to a greater conservation of dental structure, the possibility of modulating the position of the gingival margin and the increase in gingival thickness. All these concepts are also applied to Prama implants (Sweden&Martina), whose abutments without line have a reduced width leaving space for gingival tissues.

OBJECTIVE:

The aim of this study is to evaluate the differences between implants with B.O.P.T. philosophy and conventional implants in profilometric and volumetric soft tissues one year after the final restoration.

METHOD:

Cemented restorations were placed on Prama and Premium implants. The restorations were scanned with CEREC Omnicam®, the day of the cementation and a year after. Using the OraCheck® software (Cyfex), the volumetric and profilometric changes of the tissues in both groups were evaluated.

RESULTS:

The statistical analysis of the data is currently being carried out in order to obtain the results.

THREE-UNIT IMPLANT-SUPPORTED FIXED DENTAL PROSTHESIS USING INTRA-ORAL SCANNERS ARE FEASIBLE

Pol, Christiaan

Thursday, September 13th 18:50

Coauthors:	Cune, Marco	Meijer, Henny	
	Raghoebar, Gerry		

There is discussion in the dental field whether intra-oral scanning techniques are sufficiently developed to allow for the fabrication of multi-unit implant-supported prostheses. Digital-supported fabrication potentially saves time and money, but will only be adopted when the quality of the end result is sufficient. The objective of this prospective case series study was to assess the application of digital workflow in the fabrication of three-unit fixed dental prostheses (FDP): will it work successfully?

In consecutive patients (n=60, mean age 60,8 years [35,7-78,1], 30m/30f) two regular implants were placed to replace three missing posterior teeth. After osseointegration, coded healing abutments were placed. Full-arch intra-oral scans were made to design and produce the titanium abutments and full-zirconia FDP. Clinical variables were recorded after inclusion, loading and 1-year follow-up. Radiographs were used to assess peri-implant bone alterations and a questionnaire was used to assess patient satisfaction.

Because of failed osseointegration one implant had to be replaced. All restorations could be successfully cemented (n=60). Main findings were: slight color-mismatch (n=23) and margin-discrepancy (n=15). Main causes for additional visits were: first scan rejected (n=7), recementation (n=3), treatment of peri-implant gingivitis (n=3), major adjustment of design, color, occlusion or adjustment of occlusion (all n=2).

After 1 year, all restorations and implants were in place and functional. Clinical variables (plaque, bleeding, gingiva index, probing pocket depth) did not change significantly between loading and follow-up. Average bone-loss was 0,1mm (sd: 0,49). Patient-satisfaction improved significantly with on average +3,33 points on 10-point scale (p<.001). Patients were highly satisfied with both color and design of the FDP. Treatments were successful with 100% survival and high satisfaction. The use of intra-oral scans of coded abutments produced functional FDPs, but not without some complications such as a high amount of margin-discrepancies. Therefor the technique proved feasible, but not infallible.

EFFECT OF SURFACE TREATMENTS ON SHEAR BOND STRENGH OF CAD-ON-SYSTEMS

Sevmez, Hatice

Thursday, September 13th 19:05

Coauthors:	Bankoglu Gungor, Merve	Turhan Bal, Bilge	Yilmaz, Handan
	Karakoca Nemli, Secil	Aydin, Cemal	

OBJECTIVE:

The purpose of this study was to investigate the effect of different core/veneer materials and surface treatments on the shear bond strength and surface roughness of different CAD-on systems.

METHODS:

Four core/veneer combinations were created using zirconia cores (Incoris Z1-ZZ, IPS e.max ZirCAD-ZC) and veneering materials (IPS e.max CAD-L, Cerec Blocks-F) as follows: Group-1: ZZ fusing L, Group-2: ZZ cementing F, Group-3: ZC fusing L, and Group-4: ZC cementing F. A total of 80 square-shaped (10×10×2mm) zirconia cores and disc-shaped (3×3mm) veneer layer were prepared from each material. Four core/veneer combination groups were divided into four subgroups (n=10) according to the surface treatment methods: 1)Control group-C, 2)Grinding-G, 3)110µm air borne particle abrasion-RPr, and 4)110µm silica coated air borne particle abrasion-RPI. Before bonding procedures of the veneer, surface treatments were applied to the zirconia cores and surface roughness values were measured. The shear bond strength test was performed using a universal testing machine. Data were statistically analyzed (α=0.05).

RESULTS:

Regardless of the veneer material, average surface roughness values in ZZ and ZC were ordered as G>RPr>RPI>C and as RPr>G>RPI>C, respectively. The Ra values were not significantly different between the G and RPr groups, while the values in control groups were significantly lower in both ZZ and ZC groups ($P>0.05$). L veneer groups had significantly higher shear bond strength values than F groups in all surface treatments groups ($P<0.05$). The highest SBS value was observed in RPI-L group, while the lowest SBS value was observed in RPI-F group ($P<0.05$).

CONCLUSION:

Lithium disilicates which were bonded to zirconia cores by fusion ceramic had a greater bond strength than the resin cemented feldspathic ceramic. 110µm silica coated air borne particle abrasion had a different effect on the shear bond strength between the lithium disilicate/feldspathic ceramics and zirconia cores.

KEYWORDS:

CAD-on, shear bond strength.

WORKFLOW FOR COMPUTER-GUIDED IMPLANT SURGERY AND PRESERVATION OF EMERFENCE PROFILE

Siavikis, Georgios

Friday, September 14th 9:00

Coauthors:	Naka, Olga		
	Tolidis, Kosmas		

OBJECTIVE:

New concepts and materials in digital dentistry simplify the dental practitioner's clinical procedures, reduce the treatment time and guide the final restoration in a more effective and predictable way. The objectives of this study were: 1) to describe a fully digital workflow used to perform computer guided implant placement in the aesthetic area and the delivery of a CAD/CAM abutment-crown in a single visit and 2) to record and attribute the pre-extraction emergence profile characteristics to the final restoration.

METHODS:

A digital treatment pathway with computer-guided implant surgery was chosen for the patient's rehabilitation with a fractured root in the maxillary anterior region. The data obtained from the intraoral scanner before the root extraction and the optical scanning data from the extracted root were imported into the virtual implant planning software and aligned, allowing the simulation of surgical and prosthetic phases. A prosthetically-driven implant/surgical plan was conducted and a stereolithographic surgical guide was printed to transfer the planned rehabilitation project directly into the surgical field. After the osseointegration a CAD/CAM definitive monolithic screw-retained crown was milled and connected to a titanium insert (Ti-base) copying the natural pre-extraction emergence profile.

RESULTS:

The adopted protocol replicated the position and the three-dimensional anatomy of the preoperative soft and hard tissues. The advanced esthetic requirements were completely met according to Pink and White Esthetic Scores and patient's satisfaction. Clinical evaluation showed maintenance of the aesthetic-functional outcome 12 months after treatment.

CONCLUSIONS:

Combining the pre-operative intraoral digital scan of the fractured tooth with the optical scan of the bone anatomy, critical anatomic features were replicated in the definitive restoration, improving the therapeutic and esthetic outcome.

ORAL PRESENTATIONS

Orofacial pain and temporomandibular disorders

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ÇOLPAK	EMINE DILARA	Turkey	Temporomandibular Joint Internal Derangements Related to Posterior Dentition.		Sep 14th 10:00	Grados Room
DONMEZ	MUSTAFA BORGA	Turkey	Surface Roughness of CAD/CAM Ceramics After Different Etching Procedures.		Sep 14th 10:30	Grados Room
EVREN	BUKET	Turkey	Evaluation of the efficacy of different treatment modalities in painful temporomandibular disorders.		Sep 14th 10:15	Grados Room
TURKER	IZIM	Turkey	Evaluation of Masseter Muscle Stiffness, Transversal and Sagittal Diameter with Shear-wave Elastosonography - A Double-blinded Study.		Sep 14th 10:45	Grados Room

TEMPOROMANDIBULAR JOINT INTERNAL DERANGEMENTS RELATED TO POSTERIOR DENTITION

Çolpak, Emine Dilara

Friday, September 14th 10:00

Coauthors:	Soydan, Damla	Canger, Emin Murat	
	Kilic, Kerem		

Temporomandibular joint disorders are common disorders that affects a considerable portion of population.Its etiology stil remains controversial.Anatomic variations,bruxism,total or partial edentulism are suggested as predisposing factors in previous studies.In this study,we investigated the relationship between temporomandibular joint(TMJ) internal derangements and posterior dentition.

MATERIAL-METHODS:

This study was conducted in Erciyes University Faculty of Dentistry Departments of Prosthodontics and Maxillofacial Radiology.40 patients referred to our clinic with complaining of TMJ disorders.Magnetic resonance imaging (MRI) records were obtained from each patient to identify status of internal derangements.Stage of internal derangement was determined on T1-weighted sagittal images.Patients were divided into two groups according to their posterior dentition.Group1 was consisted of patients with a complete dentition without missing teeth.Group2 was consisted of patients who had bilateral 2 or more posterior missing teeth.Statistical analysis was performed using the SPSS 21.0 program. A chi-Square analysis was use to determine relationship between TMJ internal derangement and posterior dentition.$p<0.05$ was considered statistically significant.

RESULTS:

The examined group consisted of 40 patient TMJ disorder (without further osteological, autoimmune, rheumatoid, metabolic diseases).92,5% of patients included in the study were female and 7,5% were male.The avarage age was 34,85(age range 19-61 years).The null hypothesis that there is no relationship between Posterior dentition and TMJ internal derangement was rejected($p<0.05$).50% of the patients in Group 1 exhibited disc displacement without reduction(DDWOR),35% of them exhibited disc displacement with reduction(DDWR) and %15 of them had normal disc position.%15 of patients Group2 showed DDWOR,40% of them had DDWR and 45% of them exhibited normal disc status.

CONCLUSION:

Patients with missing posterior teeth exhibited higher DDWOR.Missing posterior teeth may affect the stage of temporomandibular internal derangements.A loss of occlusal support is a causative factor for changes in the condyle position and TMJ internal derangements.

KEYWORDS:

TMJ Disorders, Magnetic Resonance Imaging.

SURFACE ROUGHNESS OF CAD/CAM CERAMICS AFTER DIFFERENT ETCHING PROCEDURES

Donmez, Mustafa Borga

Friday, September 14th 10:30

Coauthors:	Yucel, Munir Tolga		
	Okutan, Yener		

OBJECTIVE:
The purpose of this in-vitro study was to evaluate the surface roughness of all-ceramic materials after various surface treatment methods.

METHODS:
280 ceramic samples were prepared from four different CAD/CAM materials (IPS Empress, IPS e.max, Vita Suprinity and Vita Enamic) by using a low-speed diamond saw under water cooling. Ceramic samples obtained from Vita Suprinity and IPS e.max CAD blocks were fully crystallized according to the manufacturers' recommendations and divided into seven subgroups as follows; Control group (C), etching with %5 Hydrofluoric acid (HF) for 60 seconds (5A), %5 HF for 120 seconds (5B), %10 HF for 60 seconds (10A), %10 HF for 120 seconds (10B), and applying Monobond Etch&Prime for 60 seconds (M1) and 120 seconds (M2). One additional sample from all groups were analyzed using atomic force microscopy (AFM) and scanning electron microscopy (SEM) in order to comprehensively examine the micro topography of the ceramic surfaces. The surface roughness values of all-ceramic specimens were measured with a profilometer.

RESULTS:
All treated materials showed significantly higher surface roughness values than control groups ($p<0.05$). 10B groups showed the highest surface roughness values for all materials.

CONCLUSIONS:
Etching time and acid concentration affect the surface roughness of CAD/CAM materials.

EVALUATION OF THE EFFICACY OF DIFFERENT TREATMENT MODALITIES IN PAINFUL TEMPOROMANDIBULAR DISORDERS

Evren, Buket

Friday, September 14th 10:15

Coauthors:	Sanivar Abbasgholizadeh, Zeliha		
	Ozkan, Yasemin		

PURPOSE:

The purpose of this study is to evaluate the clinical efficiency of stabilization splint, stabilization splint with ultrasound guided arthrocentesis and stabilization splint with low level laser treatment.

MATERIAL AND METHODS:

Forty-five patients with unilateral disc displacement who has limited mouth opening and pain were randomly divided into three groups (Group 1= stabilization splint, Group 2= stabilization splint+ultrasound guided arthrocentesis, Group 3= stabilization splint+low level laser treatment). The groups were controlled clinically at 1., 2., 3., 4., 5. and 6. months. Vertical range of motion of mandible, pressure pain values of intraoral and extraoral muscles and patients' subjective pain scores were recorded. Kruskal Wallis test, Mann Whitney U test, Friedman test, Wilcoxon test were used for the evaluation of the study data.

RESULT:

At the end of treatment, vertical range of motion of mandible was significantly increased while, VAS, masticatory muscles palpation values were significantly decreased in all groups. When the groups were compared, Group 2 had a quicker improvement in terms of mouth opening scores at the end of the first month and unassisted mandibular opening without pain scores were found to be more than 35 millimeters in all groups at the end of 6th month.

CONCLUSION:

Stabilization splint tratment with ultrasound guided arthrocentesis showed quicker improvement in the treatment of painful temporomandibular disorders. All the treatment methods have shown successful results in the long term.

KEYWORDS:

Splint, Ultrasonography, Arthrocentesis, Laser, Temporomandibular Joint.

EVALUATION OF MASSETER MUSCLE STIFFNESS, TRANSVERSAL AND SAGITTAL DIAMETER WITH SHEAR-WAVE ELASTOSONOGRAPHY - A DOUBLE-BLINDED STUDY

Turker, Izim

Friday, September 14th 10:45

Coauthors:	Kursoglu, Pinar	Ozen, Elifnaz	
	Aydin Aksu, Sibel	Baskak, Fulya	

OBJECTIVE:

The purpose of this study was to examine the masseter muscle stiffness, transversal and sagittal diameter using shear-wave elastosonography and to compare the values of healthy muscle groups and painful masseter muscle groups due to spasm.

METHODS:

16 painful masseter muscles due to spasm (VAS scores ≥ 4, Group A) and 22 healthy masseter muscles (VAS scores < 4, Group B) were chosen and masseter muscle pain levels were evaluated according to DC/TMD by clinical examinations of one practitioner. After clinical examinations Group A and B were scanned with shear-wave elastosonography and B-mod ultrasonography (Aplio 500 Ultrasound Device, Toshiba Medical Systems Corporation, Tochigi, Japan) and the stiffness (kPa), transversal diameter (mm) and sagittal diameter (mm) of muscles while the jaw is at resting position (relaxation) and clenching position (contraction) were recorded.

RESULTS:

It was seen that during the relaxation, the masseter muscle stiffness difference between Group A and Group B is statistically significant ($p=0.033$, $p<0.005$). Group A have higher stiffness values. The masseter muscle transversal diameter difference between Group A and B is statistically significant ($p=0.026$, $p<0.005$). Group B have greater transversal diameter. The masseter muscle sagittal diameter difference between Group A and B is not statistically significant ($p=0.181$, $p>0.005$). During the contraction, there is no statistically significant difference between Group A and B in terms of stiffness, transversal diameter and sagittal diameter ($p>0.005$).

While observing the stiffness of Group A during contraction and relaxation, it was seen that there is no statististically significant difference ($p=0.564$, $p>0.005$). There is statisti-cally significant difference between the stiffness values of Group B during contraction and relaxation ($p=0.001$, $p<0.005$). In both Group A and B, there are no statistically significant differences during contraction and relaxation in terms of transversal and sagittal diameters ($p>0.005$).

CONCLUSION:

As a result of this research masseter muscles of Group B are capable of relaxing more, getting softer and increasing their width. In Group A, masseter muscles can not relax as much as the masseter muscles of Group B. Shear-wave elastosonography method which shows spasm points and stiffness of masseter muscles by ultrasonic waves may be suitable for evaluating the masseter muscles, additionally with B-mod ultrasonography the diameters of masseter muscles can be measured. This method helps to diagnose masseter muscle spasm.

KEYWORDS:

Shear-wave elastosonography, Masseter muscle stiffness, Masseter muscle diameters

ORAL PRESENTATIONS

Removable prosthodontic

HOME

ORAL PRESENTATIONS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ERDEM	KUBRA	Turkey	Effect of different denture cleaners on mechanical properties of new generation composites.		Sep 14th 12:30	Botella Room
ÖZSOY UÇAR	SELIN ÜMMÜ	Turkey	L-RTX Versus Locater Attachments on Retention.		Sep 14th 12:45	Botella Room
QAFMOLLA	ALKETA	Albania	Correlation of Head Posture with Anomalies of 11nd Class.		Sep 14th 13:00	Botella Room
VAN ZEGHBROECK	LIEVE	Belgium	Can Dentists and Dental Technicians Recognize the Fabrication Modus of Removable Partial Dentures?		Sep 14th 13:15	Botella Room

EFFECT OF DIFFERENT DENTURE CLEANERS ON MECHANICAL PROPERTIES OF NEW GENERATION COMPOSITES

Erdem, Kubra

Friday, September 14th 12:30

Coauthors:	Ozyilmaz, Ozgun Yusuf		
	Sayin Ozel, Gulsum		

OBJECTIVE:

In recent years, labratory composites are became popular for using removable prosthesis because of their esthetics and improved mechanical properties compared with PMMA. Especially Ti, PEEK/PEAK, PMMA and Cr-Co metal substructures are covered with labratory gingival shade composites for implant supported removable dentures. Naturally, patients can use denture cleaners with the composite structured removable prosthessis. According to these popular method in this study we want to determine the effect of different denture cleaners on surface roughness, microhardness and color stability of denture base composites.

METHODS:

60 disc shape samples (10mm x 2 mm) were prepared for three different labratory composites (Anax Gum-Dark Pink, Anaxdent, North America/ Nexco-Dark Pink, Ivoclar Vivadent,Liechtenstein/ GradiaGum- Pink,GC, Japan) and then randomly divided them into 4 groups (n:10): Group A was the control group, which was placed in distilled water while group B, C and D were the experimental groups which were applied by three different denture cleaning tablets, respectively (Corega/Protefix/Curaprox). Each procedure in experimental groups were lasted for 8h for 140 days. Baseline and after immersion values of samples (surface roughness values using by profilometer, microhardness values using by vickersmicrohardness device and color stability using by spectrophotometer) were recorded. Data were analyzed by one-way analysis of variance (ANOVA) followed by Tukey's honestly and paired t test's. $p<0.05$ was considered significant.

RESULTS:

Significant physical properties difference was found between group experimental groups and control group ($P<0.05$). No significant difference between group B,C and D groups for surface roughness ($P>0.05$) while differences were found among hardness values for all groups.

CONCLUSION:

Using denture cleaners may affect physical properties of denture base composites due to this could required careful usage of denture cleaners for these materials.

L-RTX VERSUS LOCATER ATTACHMENTS ON RETENTION

Özsoy Uçar, Selin Ümmü

Friday, September 14th 12:45

Coauthors:	Özdemir Doğan, Derya		
	Copkun, Mehmet Emre		

PURPOSE:

Implant-retained overdenture is the common preference of the rehabilitation of edentulous mandibula. The anatomical factors influence the location and the inclination of the implant placements. Locator attachment systems compensate the diversity of the implant angulation up to 200. It has been claimed that the new attachment system, locator-rtx, compensate the higher diversity. The aim of this study was to evaluate the retention of the locator and locator-rtx.

MATERIAL AND METHOD:

Forty PMMA molds in the form of rectangular prism (22mm, 45 mm, 20 mm) were produced using CAD-CAM. Two holes were drilled on the surface of twenty specimens, one is vertical the other is angulated at 250 for the analogs, twenty molds were drilled for the housing at the same dimension and pink males were used. Analogs and housings were placed into the mold using PMMA. Twenty locator and locator rtx (Zest Anchor, USA) were placed into the analogs for retention test which were performed by using chewing simulator (SD Mechatronik, Germany) at 5000 cycles. The data was analyzed with Mann-Whitney U test (P<.05).

RESULTS:

According to the results, retention decreased in all groups during the chewing cycles and the difference between groups was not significant. The males of attachment systems were eroded in all groups.

CONCLUSION:

Within the limitations of the study, the maintenance of the obtained retention of new attachment system, rtx, did not meet the expectations. Furthermore, to determine the erosion amount and retention of other males will be a subject of further studies.

KEYWORDS:

Locator, Locator-RTX.

CORRELATION OF HEAD POSTURE WITH ANOMALIES OF 11ND CLASS

Qafmolla, Alketa

Friday, September 14th 13:00

Coauthors:	Mulo, Virgjini		

The head position and second class anomalies have a correlation ship between each other. The postural system showed a cybernetic complex system, where NCS has a command elaborating and integrated function of receptor information. The muscle-ligament apparatus is a part of this cybernetic system that under the NCS influence may to self-adapted or to change not to have further adaptive opportunity. The head posture may to influence at the initial contacts of the teeth. The second class of anomalies causes an un-normal posture like: a prior head position, fusion of C4-C5, lordosis, kifiosis and scoliosis.

THE AIM OF STUDY:

To evidence the correlation that exists between the second class of anomalies and body posture.

MATERIAL & METHOD:

We studied 2 groups of patients. In the first group were included 50 patients with 11-nd class of anomalies, and in the second group of patients was called control group. The age of both groups of patients was 5-16 years old, while according the gender of patients for the first group: 36 female and 14 male, and for second group of control: 34 female and 16 male. The patients were examined in objectively and subjective manner, as well as by panoramic, chephalometry and vertebral column radiological examinations. The patients were treated by orthopedic – orthodontic procedures.

RESULTS:

The age of patients was 5-16 years old, where the 12 years old was predominant in 46% for both groups of study, predominated female gender. For first group 36 (72%) and 34 (68%) for second group were female. Do not shown important statistical changes according the gender between both groups (x2 = 0,02; and prevalence p =0.4). From 59 patients about 38 (76%) were found with 11-nd class of anomalies and from those 16 (32%) were with postural anomalies (fusion C2-C3); 10 (63%); and lodrosis 6 (37%). Treatment of patients carried out by orthopedic- prosthetic, where positive results arrived in 81, 25%).

DISCUSSION:

The selection of age groups 12 years old was looked under the treatment orthodontic aspect, because the patients were in the growth age and will react positively according the orthodontic treatment.

CONCLUSIONS:

The patient's treatment with skeletal dental anomalies accomplished with bad posture should carry out by orthopedic – orthodontic multi-disciplinary method.

KEYWORDS:

Dental-skeletal anomalies, Posture, Orthopedic – Orthodontic treatment, The head posture, 11-nd class of anomalies.

CAN DENTISTS AND DENTAL TECHNICIANS RECOGNIZE THE FABRICATION MODUS OF REMOVABLE PARTIAL DENTURES?

Van Zeghbroeck, Lieve

Friday, September 14th 13:15

Coauthors:	Boons, Eric		

INTRODUCTION:

Computer-aided design and computer-aided manufacturing (CAD/CAM) technology is available for the fabrication of removable partial dentures (RPDs) as an alternative to conventional fabrication technique.
Objectives:
The purpose of this study was to investigate if dentists and dental technicians can recognize the fabrication modus of RPDs at the try-in stage of the framework.

MATERIALS & METHODS:

Twenty dentists and 20 dental technicians with a professional experience ranging from (2-45y) participated in this study. A series of 24 RPDs presented on their their corresponding definitive casts ready for the try-in of the framework. were given for evaluation. They were all fabricated by dental technicians, each expert in his own field: 2 by digital fabrication ad modum selective laser sintering (DS1 and DS2), 1 by digital fabrication ad modum printing and casting (DP) and 3 using the conventional fabrication technique by waxing and casting (A1, A2 and A3).
A dental magnifying loupe (X 2,5 with working distance 34 cm) was available. Paired t-tests were used to identify statistically differences at $P<0.05$.

RESULTS:

There were significant differences between the dentists and dental technicians on their knowledge of fabrication technique. In both groups experience with the different fabrication modi was significant.

DISCUSSION:

When the RPDs are delivered to the dentist for the try-in of the framework, the structures are polished and finished. The parts responsible for the fit, stability and strength should be touched to a minimum. The inner side of the clasps, the saddles and the major connector can reveal the fabrication modus of the RPD. The layer-by-layer nature of additive manufacturing leaves a staircase effect on the finished product. The handmade RPDs can reveal anatomical structures due to the manipulation of the wax.

CONCLUSIONS:

The dentists in this study were hardly able to recognize the fabrication modus. The dental technicians and prosthodontists were able to recognize the fabrication modus in accordance with to their own experience.

POSTERS

Dental education

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ABDULMAJEED	OKSHAH	Germany	Your navigation system towards prosthodontic specialization.		Sep 13th 17:00	Poster Area
ELSHEIKH	NASR	Sudan	Knowledge and Willingness of Dental Staff to treat HIV patients at Prosthodontics Department in an African Institute.		Sep 13th 17:00	Poster Area
KINKELA DEVčIć	MAJA	Croatia	Dental Students' Ability to Accurately Detect the Tooth Colour.		Sep 13th 17:00	Poster Area
KOCACÝKLÝ	MUSTAFA	Turkey	An alternative technique by using digital photography and UV printing for fabricating a custom made ocular prostheses.		Sep 13th 17:00	Poster Area
MEAÑOS	ANTONIO	Spain	Smart Splint. A new device in bruxism diagnosis.		Sep 13th 17:00	Poster Area
RAMIREZ SANCHEZ	MARIA DOLORES	Spain	Immediate prosthesis by digital impressions. Clinical case.		Sep 13th 17:00	Poster Area
UEDA	SHUJI	Japan	Hybrid resin coping fabricated with CAD/CAM system using scan posts.		Sep 13th 17:00	Poster Area

YOUR NAVIGATION SYSTEM TOWARDS PROSTHODONTIC SPECIALIZATION

Abdulmajeed, Okshah

Thursday, September 13th 17:00

After graduation from the dental school most of dental students find difficulty in choosing their future specialty. Being one of the young dental practitioners who have struggled to select his favorite specialty I have tried to make narrative literature review about the prosthodontic specialty and its education worldwide even contacting some program directors to ask about specific information about their programs. The aim of this presentation is to guide my young dental colleagues who are interested to pursue their post-graduation in the field of prosthodontics. This review will give a glance about the history of the specialty worldwide and in Europe then details about the postgraduate possibilities in USA, Germany, Switzerland, Japan and Saudi Arabia based on comprehensive review of the literature

KNOWLEDGE AND WILLINGNESS OF DENTAL STAFF TO TREAT HIV PATIENTS AT PROSTHODONTICS DEPARTMENT IN A AFRICAN INSTITUTE

Elsheikh, Nasr

Thursday, September 13th 17:00

Coauthors:	Eltayeb, Elsadig	Nazik Elmalaika, Husain	
	Abdalrahman, Sally		

PURPOSE:

This study aimed to assess the Knowledge and willingness of Dental Staff at Department of Prosthesis, National Ribat University (NRU) and Hospital (NRH), Sudan to treat Human Immunodeficiency Virus (HIV) patients.

MATERIALS AND METHODS:

This descriptive, cross-sectional, intuitional-based study was conducted among 170 permanent staff at The National Ribat University and Hospital, Sudan that was selected randomly and filled a self-administrated questionnaire.

RESULTS:

Out of the 170 dental staff; 75 (44%) from The National Ribat University and 95 (56%) from The National Ribat Hospital, 68% were females. Their age ranged from 21 to 56 years old with a mean (±SD) of 27.95 (±6.63). Only 7.6% of the participating dental staff correctly identified the duration of the window period of HIV (Figure1). Thirty-eight percent of them correctly recognized that HIV can be transmitted by taking dental impression from HIV infected person (Figure2). Seventy-three percent perceive that HIV patients should be treated separately. About 32% of dental staff will provide health services comfortably to HIV infected patients (Figure3). When a dental or a para-dental staff gets infected with HIV, 33% suggest work continuity. About 38% of the dental staff declared that they will never treat a patient with HIV.

CONCLUSION:

The dental staff at NRU and NRH showed a poor prosthesis-related knowledge and weak willing to treat HIV patients. It is imperative that knowledge of HIV/AIDS and willing to treat those living with HIV be further improved during dental training to increase the access to and effectiveness of dental care of HIV/AIDS patients and to enhance their quality of life.

DENTAL STUDENTS´ABILITY TO ACCURATELY DETECT THE TOOTH COLOUR

Kinkela Devčlć, Maja

Thursday, September 13th 10:30

Coauthors:	KovaČeviĆ PaviČiĆ, Daniela	Lajnert, Vlatka	
	PavliĆ, Andrej	Špalj, Stjepan	

INTRODUCTION:

Precise determination of the tooth colour helps clinicians plan the therapy and significantly increases the patient's satisfaction. Therefore, the aim of this research was to assess the dental students' ability to accurately detect the tooth colour in relation to gender and level of education.

MATERIALS AND METHODS:

Fifty-five subjects – dental students at the University of Rijeka, Croatia matched hidden colours of two brand-new A-D shade guides (Ivoclar Vivadent) with masked colour markings. The ability of students to differentiate between colours was assessed with a ratio of correctly detected colours and quantified on a 0-1 scale (with 1= absolutely correct).

RESULTS:

Accuracy of colour determination was in the range of 0.40±0.20 to 0.72±0.20 and increased according to the completed years of study with a large effect size ($p<0.001$; $\eta 2=0.332$). Differences between genders for colour detection ability were not significant (0.54±0.19 males vs. 0.53±0.24 females).

CONCLUSION:

Accuracy of colour determination is not perfect, but it may be improved with training, regardless of gender.

KEYWORDS:

Tooth Colour, Education, Dental Students.

AN ALTERNATIVE TECHNIQUE BY USING DIGITAL PHOTOGRAPHY AND UV PRINTING FOR FABRICATING A CUSTOM MADE OCULAR PROSTHESES

Kocacýklý, Mustafa

Thursday, September 13th 17:00

ABSTRACT:

Ocular defects and congenital deformities appear as results of tumours or trauma. Generally, fabricated eyes are available as ocular prostheses. In this technique, making of ocular prosthesis with the digital photograph and UV printing technique is described. This fabrication technique does not require skill in colour selection and painting, and the best esthethic results are also obtained.

SMART SPLINT.
A NEW DEVICE IN BRUXISM DIAGNOSIS.

Meaños, Antonio

Thursday, September 13th 17:00

Coauthors:	Robles , Mercedes	Hriptulova, Olga	
	Gross, Esperanza	Pradíes, Guillermo	

OBJECTIVES:

Sleep bruxism has been diagnosed trought the use of unconfortable extraoral devices (electromyograph, polysomnographic), or in a subjective way by questionaires answered by patients. The aim of this communcation is to describe a new Splint (Smart Splint) which incorporate sensors capable of measure chewing strenght and number of bruxism episodes per hour, and evaluate its capacity in the objective diagnosis of bruxism.

MATERIAL & METHODS:

Four postgraduate dentistry students who related suffering of bruxism, were recluted to this pilot study. All of them exhibited tooth wear. Polyvinyl siloxane impressions were taken to the patients. Stone models were mounting in a semiadjustable articulator. One Smart Splint was produce for each patient. The patients used the Smart Splint during the last two weeks of the postgraduate program (stress period) and during their two weeks of vacation (non-stress period). Data colletion obtain by the use of the Smart Splint, was made throught the use of a mobile application by each patient.

RESULTS:

According the number of bruxism episodes per hour , 3 patients were classified as moderate bruxers (between 4 and 8.9 bruxism episodes per hour) and one of them as mild bruxer (between 2 and 3.9 episodes per hour). No differences were found in the number of bruxism episodes related to stress.

CONCLUSIONS:

Within the limitations of this pilot study , Smart Splint seems to be useful in the diagnosis of sleep bruxism. A well design randomized clinical trial will be necesary in order to evaluate relation between stress and sleep bruxism.

IMMEDIATE PROSTHESIS BY DIGITAL IMPRESSIONS. CLINICAL CASE.

Ramirez Sanchez, María Dolores

Thursday, September 13th 17:00

Coauthors:	La peña, David		

INTRODUCTION:

The digital impressions for prosthodontics, either provisionally or definitively is a current technique in dentistry. The objective of present case is to show the clinical results and the time for the elaboration and placement of a provisional immediate prosthesis on implants, from the digital impression taken until its placement.

CLINICAL CASE:

Human, 64 years old who underwent extractions of teeth 31, 32, 41, 42 and those implants were Immediately placed in positions of 32 and 42 with the planning of placing and immediate temporary dental bridge of TMMA. To do this with have had the 3M™ true definitions intra oral scanner, using titanium, scanbodies, and raying with titanium dioxide. The provisional bridge was placed in 24 hours.

CONCLUSIONS:

This case show us that the digital impressions in implantology is a successful technique that provides passive adjustment in the adaptation of the prosthesis as well as reduction of clinical and laboratory times.

HYBRID RESIN COPING FABRICATED WITH CAD/CAM SYSTEM USING SCAN POSTS

Ueda, Shuji

Thursday, September 13th 17:00

Coauthors:	Sone, Mineyo	Okawa, Yutaka	Matsumoto, Daikei	Matsukawa, Takaaki	Ohkawa, Shuji
	Hamasaka, Hiroki	Somekawa, Shota	Narumi, Fumiko	Okamoto, Kazuhiko	

OBJECTIVE:

To evaluate the fitting accuracy of hybrid resin copings fabricated by a dental computer-aided design and manufacturing (CAD/CAM) system and manufactured using scan posts.

METHODS:

Prepared epoxy resin mandibular canine teeth (338; Nissin Dental Products) were selected as the abutment teeth for the copings. The root canal was recontoured with a drill (ParaPost X Drill; Coltene-Whaledent) to fit the same form of the scan posts and pressed to a depth of 5.0 mm, creating a rotational resistance groove and additional reduction to gain more clearance. A desktop scanner (Aadva Scan D810; GC Corporation) was used in this study, and images were acquired with scan posts (Scan Post; 3Shape). Design software (Dental Designer; GC Corporation) was used to create a hybrid resin coping design, and a milling machine (Aadva Mill LW-1; GC Corporation) was used to fabricate the coping from hybrid resin blocks (Cerasmart 270; GC) as specimens (n = 5). A desktop micro-computed tomography (μCT) scanner (SkyScan 1172; SkyScan) was used to measure the marginal and internal fitting accuracy of the hybrid resin coping. The specimens underwent high-resolution μCT imaging under the following conditions: Al filter, 0.5 mm; pixel size, 1024 × 1024 resolution. The space between the hybrid resin coping and the abutment was measured using an analysis application (CTAn; SkyScan). Two slices were obtained for each specimen: one in the buccal-lingual direction and another in the mesial-distal direction. Fourteen measuring points were evaluated.

RESULTS:

The fitting accuracy of hybrid resin copings fabricated with this CAD/CAM system using scan posts was within the clinically acceptable range of 100 μm, excluding two points (buccal and lingual margins).

CONCLUSIONS:

Hybrid-resin coping fabricated with this CAD/CAM system using scan posts is applicable in clinical use.

KEYWORD:

Canine, Root Canal, Tomography.

POSTERS

Dental materials

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ABDALLAH	MOUHIBI	Morocco	The assembling materials used in private practice and the most important choice criteria for materials used by dentists in Morocco.		Sep 13th 17:00	Poster Area
AIUTO	RICCARDO	Italy	Adhesion of different impression materials to Flock-PA66 covered dental tray.		Sep 13th 17:00	Poster Area
HELMINEN	OLLI	Finland	Solidification of Resin Cement on Fiber Post by Light Curing.		Sep 13th 17:00	Poster Area
KOŁODZIEJCZYK	KAMILA	Poland	Biocompatibility evaluation of T1-6AL-7NB implants produced by selective laser melting.		Sep 13th 17:00	Poster Area
LAUKKANEN	JUUSO	Finland	Polymerization of Resin Cement by Light Initiation Through Fiber Posts.		Sep 13th 17:00	Poster Area
LE BELL-RÖNNLÖF	ANNA-MARIA	Finland	Polymerization of Resin Cement by Light Scattering from Fiber Post.		Sep 13th 17:00	Poster Area
MENG	DAN	China	Study on Biocompatibility of Injectable Calcium Phosphate Cements in vitro.		Sep 13th 17:00	Poster Area
RODRIGUEZ	CHRISTIAN	Spain	Evaluation of Zirconia adhesion with and without treatment with plasma de Argon / Ivoclean.		Sep 13th 17:00	Poster Area

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
SAğIRKAYA	ELÇIN	Turkey	Effects of Thermocycling on Mechanical Properties of CAD/CAM Restorative Materials.		Sep 13th 17:00	Poster Area
SARAFIANOU	ASPASIA	Greece	Polyetheretherketone and acetal resin wettability, sorption and bond strength.		Sep 13th 17:00	Poster Area
YILDIZ	COSKUN	Turkey	Wear evaluation of glazed monolithic zirconia and different dental restorative materials.		Sep 13th 17:00	Poster Area

THE ASSEMBLING MATERIALS USED IN PRIVATE PRACTICE AND THE MOST IMPORTANT CHOICE CRITERIA FOR MATERIALS USED BY DENTISTS IN MOROCCO.

Abdallah, Mouhibi

Thursday, September 13th 16:00

Coauthors:	Anas, Bennani		
	Abderrahman, Andoh		

INTRODUCTION:

The purpose of this work is to reveal the most commonly used assembling materials in private practice and to determine the most important choice criteria for materials used by dentists.

MATERIALS AND METHODS:

In order to achieve these objectives, a descriptive epidemiological survey was carried out among 320 dentists in Casablanca who worked in the private sector through an anonymous questionnaire.

RESULTS:

Our study showed a response rate of 94.7% and a revelation that the most used luting cement is cement glass ionomer with 82.2% of the practitioners who use it and that the most used adhesives are self-adhesive resins with a utilization rate of 28%. The essential selection criterias for luting cements are the type of prosthesis at 71.3%, the preference according to the experiment at 68.3% and the properties of the material at 56.1%. Regarding adhesives, the criterias of choice most taken into account are resistance to debonding at 34.7%, the type of prosthesis at 31.7% and finally the preference according to experience at 22.1%.

DISCUSSION:

Similarly to a few studies on sealing cements and the literature, our investigation showed that CV1 is the most used cement by practitioners of Casablanca and that polycarboxylate cement arrives at the end of classification. The choice of cements would be linked in the practice of the dentists of Casablanca first to the type of prosthesis.

Self-adhesive adhesives find the most success because their implementation protocol is the least rigorous, followed by adhesive composites that allow the best aesthetic rendering. The resistance to decohesion and the type of prosthesis are the criteria of choice which are the most taken into account for the choice of glues, concluding that many practitioners keep the indications of the materials in mind to make the choice best adapted to the clinical situation

CONCLUSION:

Restorative dentistry has experienced significant development in the appearance of new techniques and materials that differ in composition and attributes. However, it may be difficult for the dentist to make a choice among this multitude of materials, so it is important to know the applications for each material depending on each clinical situation.

ADHESION OF DIFFERENT IMPRESSION MATERIALS TO FLOCK-PA66 COVERED DENTAL TRAY

Aiuto, Riccardo

Thursday, September 13th 17:00

Coauthors:	Battaglia, Davide	Re, Dino	
	Taschieri, Silvio		

OBJECTIVES:

A new tray fully covered with a tiny colored layer of microfibers (Polyamide Nylon) ,self-retentive for all impression materials without applying any adhesive has been recently released on the market.
Aim of this investigation was to assess the tensile bond strength of different impression materials (2 polivinylsiloxane and 1 Polyether) used in combination with a Polyamide Nylon Flock tray (Flock PA66), a standard plastic tray (PC-110) and a Stainless Steel standard tray.

METHODS:

90 squared boxes were manufactured for the study as well as 90 specimens/trays (30 Flock PA66, 30 PC-110 and 30 Stainless Steel).
The Impression materials selected were Aquasil Ultra Heavy (DENTSPLY), Impregum and Imprint 4 Penta Heavy(3M)
Boxes were filled in with impression material and the specimens were embedded into the impression material and maintained in position following the manufacturer instruction for material polymerization.
After materials were fully set, each was pulled in tension with a crosshead speed of 250 mm/min until failure occurred.
Normality and ANOVA test were conducted (picture 1).
Since differences were significant, a Tukey Post hoc test was run to evaluate pairs of group that differs.

RESULTS:

The Tukey post hoc test identifies three subsets. The pair of difference are explained in picture 2.
The Flock PA66 specimens showed higher adhesion values than the Plastic PC-110 and Stainless Steel covered with adhesive for each tested impression material.
Impregum and Aquasil Ultra Heavy combined with Flock PA66 showed the best value of adhesion, relevant at 5% level of significance.

CONCLUSIONS:

The use of a flocked surface showed higher adhesion values than non flocked surfaces covered with adhesive for each tested impression material. The use of Flock PA66 as a tray coating system seems to be a better alternative to the use of conventional metal or resin tray covered with adhesive.

SOLIDIFICATION OF RESIN CEMENT ON FIBER POST BY LIGHT CURING

Helminen, Olli

Thursday, September 13th 17:00

Coauthors:	Diken Türksayar, Almira Ada		

OBJECTIVES:

The aim of this study was to investigate solidification of resin cement to different fiber posts by determining mass and diameter of attached cement after light-polymerization.

METHODS:

Five different groups of fiber-reinforced composite (FRC) posts were used. Three of groups were prefabricated FRC posts (RelyX, GC and Fibrekor Fiber Post) with cross-linked polymer matrix. Two of groups included FRC posts with semi-IPN (interpenetrating polymer network) polymer matrix; one was prefabricated (M1 Core Fiber Post), other one was individually formed (everStick Post). Specimens were cut to 14mm length (n=5/post group). A 4mm thick putty was made with 1.5mm diameter hole in it. The posts were placed through the hole in the putty. A light-protected cylinder was filled to the brim with dual cure self-adhesive resin cement and the putty with the post was placed on top of cylinder with the post submerged 10mm in cement. The post was light-polymerized for 40 seconds from top. After light-polymerization post was lightly scraped clean from non-polymerized cement. After that, the post with the attached and solid cement was weighed and diameter of attached cement was measured at six different depths (4, 6, 8, 10, 12 and 14mm).

RESULTS:

The prefabricated FRC post with a semi-IPN polymer matrix (M1 Core Fiber Post) had largest amount of solid cement attached to it ($p<0.001$). The individually formed FRC post with semi-IPN polymer matrix (everStick Post) showed large amount of cement attached to apical end of post ($p<0.001$). Fibrekor Fiber Post had only 1% of attached cement compared to M1 Core Fiber Post, whereas GC Fiber Post had 72% and RelyX Fiber post had 68% of cement attachment.

CONCLUSION:

FRC posts with semi-IPN structure appear to increase volume of solid cement and attachment of resin cement which clinically may indicate better bonding to root canal.

KEYWORDS:

Root Canal Posts, Fiber-Reinforced Composite Post, Dual Cure Cement.

BIOCOMPATIBILITY EVALUATION OF TI-6AL-7NB IMPLANTS PRODUCED BY SELECTIVE LASER MELTING

Kołodziejczyk, Kamila

Thursday, September 13th 17:00

Coauthors:	Szymonowicz, Maria	Dobrzynski, Maciej	Zywicka, Boguslawa
Zbigniew, Rybak	Szachnowska, Olga	Szymczyk, Patrycja	Wiglusz, Rafal

INTRODUCTION:

Responding to the need for implant materials characterized by high biocompatibility a new type of nanostructured Ti6Al7Nb implants for osseous tissue regeneration have been fabricated using the Selective Laser Melting (SLM) method. Wide application of SLM technologies allows construction of implants used in dentistry, plates for osteosynthesis micro-screws, clasps, wires, nails and bone screws. It is possible to adjust the implant shape individually to the patient's anatomy and even to form a functional structure and surface on the surface of the implant or inside of it.

THE OBJECTIVES OF THE INVESTIGATION:

The objectives were to determine the morphological changes of the Balb/3T3 cell culture after temporary contact with implants fabricated from a nanostructured Ti6Al7Nb alloy and its assessment of cytotoxicity on the cell line.

METHODS:

The research was carried out on primary fibroblast cell culture derived from a gingival fragment. The cells were cultured in a standard condition incubator. The cells were trypsinized, seeded in a 6-well plate, in an amount of 1.5 x 10,5 cells per well. After 24 hours of incubation, a test disk was placed on each well in contact with the monolayer of cells. After 48h of incubation, the effect of the test material on cell morphology was assessed.

RESULTS:

After contact with the tested material, the cell culture showed no morphological changes compared to the control. No change in the cell morphology in the material environment and under the cell culture material at a distance from the tested samples also showed no abnormal changes compared to the control. No cytotoxic effect was observed after 48 hours.

CONCLUSION:

Nanostructured Ti6Al7Nb implants have no cytotoxic activity towards L929 murine fibroblast cells nor cause changes in the morphology of cells above the level of toxicity.

KEYWORDS:

Dental Implants, Cell Culture Techniques, Nanostructures.

POLYMERIZATION OF RESIN CEMENT BY LIGHT INITIATION THROUGH FIBER POSTS

Laukkanen, Juuso

Thursday, September 13th 17:00

Coauthors:	Lassila, Lippo	Vallittu, Pekka	
	Närhi, Timo	Le Bell-Rönnlöf, Anna-Maria	

OBJECTIVES:

Aim of this in vitro study was to explore light transmission of five different fiber-reinforced composite (FRC) posts and degree of monomer conversion (DC) of resin cement at apical end of post.

METHODS:

Five FRC posts from different manufacturers were tested. Three groups consisted of prefabricated FRC posts with cross-linked polymer matrix (RelyX, GC and FibreKor Fiber Post). Two groups consisted of FRC posts with semi-IPN (interpenetrating-polymer-network) polymer matrix; one included pre-fabricated posts (M1 Core Fiber Post) and other one individually formed posts (everStick Post). Four lengths were tested: 4, 6, 8 and 10mm (n=3). FRC posts were placed into light-protected cylinders made out of putty polyvinylsiloxane of the same length as the post. Dual-cured self-adhesive resin cement was mixed and placed onto FT/IR sensor tray and light-polymerized for 40 seconds. IR-spectra were registered at five time-points (40s, 1.5, 3, 5, 10 and 15min) and DC% was calculated.

RESULTS:

DC% decreased with increasing post length in all post groups (4, 6, 8, 10mm), but there was no statistical difference between post lengths (p=0.192;ANOVA). Four groups of FRC posts (RelyX, M1, GC, everStick Post) showed DC over 40% in all post lengths.

CONCLUSION:

Variations in DC% of resin cement of different FRC posts were found. Low DC% of resin cement may clinically lead to poor adhesion of FRC post and further to debonding of the post.

KEYWORDS:

Post and Core Technique, Spectrum Analysis.

POLYMERIZATION OF RESIN CEMENT BY LIGHT SCATTERING FROM FIBER POST

Le Bell-Rönnlöf, Anna-Maria

Thursday, September 13th 17:00

Coauthors:	Makarewicz, Dominika	Närhi, Timo	
	Lassila, Lippo	Vallittu, Pekka K	

OBJECTIVES:

The aim of this study was to investigate curing of resin luting cement at different depths and distances sidewise from surface of post by scattered light-induced polymerization.

METHODS:

Two different FRC post materials and two dual-curing resin cements were tested. FRC post materials included individually formed FRC posts with semi-IPN (interpenetrating polymer network) polymer matrix (everStick POST) and short FRC material with randomly oriented fibers in resin matrix (everX Posterior). Both FRC materials were formed into posts (diameters:1.6-1.7mm, length:10mm) and prepolymerized for 80s. Posts were cemented into light-protected cylinders (inner diameter:4.3mm, length:8mm) with two resin cements: dual-cure cement (DuoCem), self-adhesive cement (G-CEM). Light-curing flowable composite (G-aenial Flo) was used as control without dual-curing initiator system (n=6). Light-curing tip was in contact with post surface. After light-curing (80s), post-cement-systems were stored (1h) and cut longitudinally for surface microhardness measurements of resin cement. Microhardness (VHN, 0.490N, 20s, 3 repetitions/each indentation) of resin cements was used as indicator for degree of cure at different depths and distances sidewise from post. Measurements were made at depths of 0.5, 2.5, 5.5, 7.5mm and distances of 0.3, 0.425, 0.55, 0.675, 0.8, 0.925, 1.05mm from surface of post.

RESULTS:

Curing was influenced by post type, depth of post and distance sidewise from post. Surface hardness (curing) of resin cements and flowable composite at post depth of 5.5mm and maximally 0.55mm sidewise from post were on the same range suggesting only minor differences in polymerization between the two dual-curing cements and light-curing flowable composite control. Differences became more clear at higher depths of posts.

CONCLUSIONS:

This study highlighted the importance of photo-initiation of curing resin cements regardless of presence of dual-curing initiator system. This study demonstrated also that thick layers of resin luting cements may not be well polymerized by the light scattered from the post only.

KEYWORDS:

Fiber-reinforced composite post, Microhardness, Cement.

STUDY ON BIOCOMPATIBILITY OF INJECTABLE CALCIUM PHOSPHATE CEMENTS IN VITRO

Meng, Dan

Thursday, September 13th 17:00

Coauthors:	Liu, Yang		

Calcium phosphate cements (CPCs) have been widely used as bone graft substitutes for many years. CPCs can be molded or injected and set in situ to closely adapt to complex shapes for dental bone defects. The aim of this study was to evaluate the cellular compatibility of two new types of injectable, bioactive cements --β-TCP/CPC and chitosan microsphere/CPC in vitro. This was accomplished by culturing the mouse preosteoblastic cells (MC3T3-E1) on setting discs and paste of CPCs. The growth, adhesion and proliferation of the MC3T3-E1 were observed by inverted microscope, SEM, MTT assay, the activity of alkaline phosphatase(ALP) activity assay and immunofluorescence assay. The MC3T3-E1 could adhere on the discs of β-TCP/CPC and chitosan microsphere/CPC, the MTT value of β-TCP/CPC and chitosan microsphere/CPC were significantly increased at days 4, 7 and 10 ($P<0.01$) and the activity of ALP of β-TCP/CPC and chitosan microsphere/CPC was significantly higher than that of α-TCP/CPC at days 14 ($P<0.01$). Immunofluorescence assay showed cell count of group of β-TCP/CPC discs, chitosan microsphere/CPC discs and blank control was significantly higher thanβ-TCP/CPC paste and chitosan microsphere/CPC paste group ($p<0.01$). These data indicate that β-TCP/CPC and chitosan microsphere/CPC composite might be considered as a promising injectable material for the generation of new bone tissue. But curing process of CPC paste maybe had effects on cells.

EVALUATION OF ZIRCONIA ADHESION WITH AND WITHOUT TREATMENT WITH PLASMA DE ARGON / IVOCLEAN

Rodriguez, Christian

Thursday, September 13th 17:00

Coauthors:	Martinez Rus, Francisco		

CAD / CAM technologies have allowed zirconium to diffuse widely as a high strength material for dental restoration. The permanence of these structures in the mouth depends directly on their retentive capacity. This retention can be further reduced by the surface contaminants brought by the pieces from the laboratory and from the blood and / or saliva during the testing process and that interfere with the action of the cementing agent. Several substances and methods have been described in the literature, being Ivoclean and argon plasma the most common, but there are no studies comparing them. The objective of this study is to compare the adhesion to zirconium structures with and without treatment with argon or ivoclean plasma.

MATERIALS AND METHOD:

30 blocks of 10x10x10mm zirconium were embedded in an acrylic resin matrix, on the surface of the Zr block, Relyx Unicem contained within a Teflon mold 4 mm in diameter by 4mm high was deposited. Subsequently, a SBS (shear bond strength) test was conducted by means of a machine connected to a chisel that incurs 1mm from the surface of the zirconium. The samples were divided into 3 groups (n = 10), the first was control, the second was treated with Ivoclean according to manufacturer's instructions and the third was subjected to argon plasma treatment in a specially designed machine and following time and power supplied from the factory.

RESULTS:

Test groups obtained SBS values significantly higher (101% for group 2 and 81% for group 3) than control. Ivoclean shows slightly higher adhesion values than plasma of argon.

CONCLUSION:

Plasma of argon and ivoclean appeared to improve bonding between zirconia and resin cement .

EFFECTS OF THERMOCYCLING ON MECHANICAL PROPERTIES OF CAD/CAM RESTORATIVE MATERIALS

Sağırkya, Elçin

Thursday, September 13th 17:00

Coauthors:	Atay, AyŞe		

OBJECTIVE:
The purpose of this study was to evaluate the influence of thermocycling on the flexural properties and hardness of computer-aided design/computer-aided manufacturing (CAD/CAM) materials.

METHODS:
Six representative chairside CAD/CAM materials ranging from translucent zirconium oxide sinter ceramic (InCoris TZI, Dentsply, [IC]), reinforced glasses (Vitablocs Mark II, VITA, [VM]; EmpressCAD, Ivoclar-Vivadent, [EC]), glass-ceramics (e.max CAD, Ivoclar-Vivadent, [EM]; Suprinity, VITA, [VS]) and resin nanoceramic (Lava Ultimate, 3M ESPE, [LU]) have been selected. Polished 14×4×1.2 mm bars (n=36) were prepared from standard-sized milling blocks of each tested material. The bars were divided into three different storage condition groups: group 1 (under dry conditions at room temperature), group 2 (37°C distilled water for 7 days), group 3 (37°C distilled water for 7 days followed by 10,000 thermal cycles). All specimens were subjected to a 3-point flexural test with a crosshead speed of 1.0 mm/min. The fracture response of materials were determined for cracks induced by Vickers indentation. The flexural modulus (E), flexural strength (σ) and hardness (VH) were analyzed by ANOVA followed by the Tukey's post-hoc comparison test ($p<0.05$).

RESULTS:
There were statistically significant differences between materials and storage conditions according to E, σ and VH values ($p<0.05$). E, σ and VH values were significantly decreased after water storage followed by thermal cycles when compared with dry storage ($p<0.05$). IC group showed significantly higher E, σ and VH values than the other groups while LU group showed significantly lower E, σ and VH values ($p<0.05$).

CONCLUSION:
Results demonstrated that the mechanical properties of CAD/CAM restoration materials had showed a significantly decrease after water immersion and thermocycling.

KEYWORDS:
CAD/CAM material, Elastic modulus, Hardness.

POLYETHERETHERKETONE AND ACETAL RESIN WETTABILITY, SORPTION AND BOND STRENGTH

Sarafianou, Aspasia

Thursday, September 13th 17:00

Coauthors:	Natsios, Ioannis	Sykaras, Nikitas	Spyropoulos, Dionyssios
	Zoidis, Panagiotis	Papavasileiou, Georgios	

OBJECTIVE:

To evaluate the wettability and water sorption of polyetheretherketone/PEEK (PK) and acetal resin (AC), as well as their bond strength to polymethylmethacrylate (PMMA) resin.

MATERIALS AND METHODS:

Twenty disk shaped PK (breCAM.BioHPP, Bredent), AC (TSM, AcetalDental) and PMMA (Vertex Regular, Vertex Dental) specimens (10X5X2mm) were fabricated and polished according to the manufacturers' instructions. The PMMA disks were used as control. The specimens of each material were divided in two groups (I, II) (n=10). Wettability was evaluated using contact angle (θ°) measurements (Group I). For water sorption, weight measurements were taken before and after storage (37°C, 7d) (Group II).For shear bond testing, twenty PK and twenty AC disks were divided into two groups (III ,IV)(n=10). Plexiglas tubes were filled with PMMA (Jet, Lang Dental) and bonded to the disks previously conditioned with Visiolink primer (Bredent). All specimens were stored (37°C, 1d), while Group IV specimens were further thermocycled (1000 cycles, 5- 55°C, 30s) prior to shear testing (1mm/min). Wettability, sorption and bond strength data were statistically analyzed (ANOVA, Tukey's, $p<0.05$)

RESULTS:

No statistically significant difference was found for wettability among the materials tested (PK 60°±5,43°, AC 62,3°±4,75°,PMMA 57,05°±5,89°).PK presented significantly less water sorption compared to both AC and PMMA (PK 2,55± 0,2,μgr/mm3, AC 11,97±1,1 μ gr/mm3,PMMA14,01±1,2 μgr/mm3). AC showed significantly higher shear bond strength compared to PK, both with (PK 5,47±1,79MPa,AC 12,46±1,75 MPa) and without thermocycling (PK 6,79±0,89MPa,AC 10,53±1,93 MPa). Thermocycling did not significantly affect the bond strength of any material tested.

CONCLUSIONS:

Due to their favorable wettability and water sorption properties, PK and AC may be considered clinically as viable alternative materials for non-metal removable denture base and /or framework construction. The PK bond strength to PMMA warrants further investigation.

WEAR EVALUATION OF GLAZED MONOLITHIC ZIRCONIA AND DIFFERENT DENTAL RESTORATIVE MATERIALS

Yildiz, Coskun

Thursday, September 13th 17:00

Coauthors:	Keban, Seda		
	Ozkan, Yasemin		

PURPOSE:
Determination of the amount of wear that will occur in glazed monolithic zirconia and different dental restorative materials after dynamic loading.

MATERIALS AND METHODS:
In the present study, 7mm/7mm/ 3mm 40 glazed LAVA monolithic zirconia, 10 premolars, in the form of hemisphere 5 mm diameter and 10 mm in height 10 feldspathic porcelain, 10 lithium disilicate ceramic (IPS e.max Press), 10 composite (Herculite) and 10 polished zirconia samples were prepared. A three-dimensional laser scanner was used to perform surface scanning before simulation. The samples were subjected to a 240 000 chewing cycle with dual-axis chewing simulator (load 50 N, heat cycle 5-55 °C), equivalent to 1 year of clinical use. After the simulation, the surface scans were repeated and the obtained data were superimposed to determine the amount of wear. Independent Samples t, Kruskal Wallis and Mann Whitney U tests were used for statistical analysis.

RESULTS:
Antagonist wear was found lower in enamel samples (0,097 mm3) than polished zirconia samples (0,015 mm3). Material wear against enamel was found (0,191 mm3) higher than the wear against feldspathic ceramic (0,068 mm3).

CONCLUSION:
Nowadays, the use of monolithic zirconia restorations have been popular. The results of this in vitro study will illuminate future in vivo and in vitro studies.

KEYWORDS:
Monolithic, zirconia, chewing simulator, wear.

POSTERS

Fixed Prosthodontic

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ABAD CORONEL	CRISTIAN	Ecuador	Complete digital flow to improve the smile in the same clinical session.		Sep 14th 9:00	Poster Area
ABDALLAH	MOUHIBI	Morocco	Fracture of ceramics: literature review.		Sep 14th 9:00	Poster Area
BAGIS	BORA	Morocco	Translucency parameters of currently used esthetic CAD-CAM materials.		Sep 14th 9:00	Poster Area
BLASI BERIAIN	MARTA	Spain	Strategies and parameters for single unit restorations in esthetic zone.		Sep 14th 9:00	Poster Area
BOSTANCIOGLU	SIBEL EZGI	Turkey	Restoration of Six Implant with Metal Supported Veneering Composite: Case Report.		Sep 14th 9:00	Poster Area
BOUSIOU	ANDRIANNA	Greece	Restoring Microdontia in the anterior region using Laminate Veneers. A case presentation.		Sep 14th 9:00	Poster Area
CATIC	AMIR	Croatia	Retrospective 5-year evaluation of FPDs connecting teeth and implant abutments.		Sep 14th 9:00	Poster Area
ESCOBEDO MARTINEZ	MATIAS FERRAN	Spain	Oral adhesive rehabilitation: a new era for Odontology.		Sep 14th 9:00	Poster Area
ESER	ECEM	Turkey	Construction of Fiber Reinforced Composite Bridge with a Modified Technique.		Sep 14th 10:00	Poster Area
FIOCCHI	ALESSANDRO	Italy	Aesthetic Evaluation of Teeth's Shape Between Dentists, Laymen and Students.		Sep 14th 10:00	Poster Area

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
GONIDIS	THEODOROS	Greece	Rehabilitation of a severely damaged dentition with Monolithic Lithium Desilicate restorations on a patient with bruxism.		Sep 14th 10:00	Poster Area
GRIGORIOU	STAMATINA	Greece	Prosthetic treatment of periodontically compromised anterior teeth with zirconia-based restoration.		Sep 14th 10:00	Poster Area
KOKKONI	MAGDALINI	Greece	Minimally invasive rehabilitation in the esthetic zone with all ceramic restorations.		Sep 14th 10:00	Poster Area
KORKMAZ	FATIH	Turkey	Repair bond strength of resin composite to metal alloys using different surface treatment methods.		Sep 14th 10:00	Poster Area
ÖZCAN	MUTLU	Swiss	Cutting Efficacy of Burs with Different Coatings on Various Reconstruction Materials.		Sep 14th 10:00	Poster Area
OZEN	ELIFNAZ	Turkey	Treating Mobile Tooth with Unified Laminate Splint: A Case Report.		Sep 14th 11:00	Poster Area
PACHIOU	ASPASIA	Greece	Digital, Conventional or Hybrid Workflow for Fixed Prosthodontics?		Sep 14th 11:00	Poster Area
PESSON	MULLER DELON	Yvory Coast	Practices of all-ceramic restorations in Abidjan,Côte d''Ivoire: an Overview.		Sep 14th 11:00	Poster Area

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
QUIÑONES PÉREZ	GERALDINE	Spain	Upper Arch Zirconia Rehabilitation Using BOPT Technique: A Case Report.		Sep 14th 11:00	Poster Area
RODRÍGUEZ ALONSO	VERÓNICA	Spain	Fracture Load of Prosthetic Frameworks Thermo-cycled with Synthetic Saliva.		Sep 14th 11:00	Poster Area
RODRÍGUEZ LÓPEZ	SAMUEL	Spain	Fiber-Reinforced composite bridges with a vestibular feldspathic veneer: new technique.		Sep 14th 11:00	Poster Area
TOBAR ARRIBAS	CELIA	Spain	Marginal Fit of Co-Cr Prosthetic Structures Constructed by Different Technologies.		Sep 14th 11:00	Poster Area

COMPLETE DIGITAL FLOW TO IMPROVE THE SMILE IN THE SAME CLINICAL SESSION

Abad Coronel, Cristian

Friday, September 14th 9.00

Coauthors:	Sarango Erique, Juan Carlos		

ABSTRACT:

With digital technologies, the resolution of clinical cases requires less time, but getting out of the digital flow to achieve the final clinical results is a possibility. Doing everything through the digital flow decreases in certain cases the possibility of increasing errors. The present clinical case compiles the information, diagnosis, plan and execution of the treatment exclusively using digital technology, without physical models, or aggregates of coating material, resolving the clinical case in the same session.

METHODS:

Patient of 37 years who comes to the consultation with aesthetic needs. A digital smile design, digital planning, and treatment sequence using chairside technology were performed in the same session. For the materialization of the design, monolithic ceramic materials were used. Through the transmission of data to the glaze furnace, the final finishing was programmed.

CONCLUSIONS:

Using a complete digital flow is feasible to functionally and aesthetically rehabilitate the patient with up to 8 restorations in the same clinical session.

KEYWORDS:

Digital Dentistry; Chairside; CAD / CAM.

FRACTURE OF CERAMICS: LITERATURE REVIEW

Abdallah, Mouhibi

Friday, September 14th 9.00

Coauthors:	Anas, Bennani		
	Abderrahmane, Andoh		

Any prosthetic device placed in the mouth is subjected to significant forces during the masticatory function. Prostheses supra ceramic structure (with a metallic or ceramic infrastructure) can therefore undergo ceramic fractures. The causes of these invoices are multiple: a defect of design or realization, an occlusal overload...

Different repair possibilities exist. It may be either the resumption of the prosthesis, or the composite bonding or the fractured ceramic fragment or the achievement of a ceramic-metal or fully ceramic telescope cap that will come to aggregate on the prosthetic element after preparation of the fractured area.

The objective of this work is to develop all these aspects by illustrating by clinical cases.

TRANSLUCENCY PARAMETERS OF CURRENTLY USED ESTHETIC CAD-CAM MATERIALS

Bagis, Bora

Friday, September 14th 9.00

Coauthors:	Turgut, Sedanur		
	Önder Kılınç, Hamiyet		

OBJECTIVES:

To evaluate the translucency parameter (TP) values of CAD-CAM materials after UV aging. Material and methods: 70 specimens (n=10) of Bruxzir Anterior (BA); E.max Press (EP); Lava Ultimate (LU); Cerasmart (CE); Vita Enamic (VE); Vita Suprinity (VS); Vita Mark II (VM) were prepared (1mm±0.01mm). Color measurements were performed using a spectrofotometer (VITA Easyshade). TP values of the specimens before (TP1) and after UV aging (TP2) were evaluated. Statistical analyses were done with repeated measurements of two-way-ANOVA with Fisher's LSD test. ($p<0.05$). Results: Evaluating TP1 and TP2 values; significant differences were found ($p<0.05$). There were no significant difference between the TP1 values of CE and VS ($p=0.779$); EP and VM ($p=0.952$); VM and LU ($p=0.995$); EP and LU ($p=0.653$). Evaluating TP2 values; VE and BA were found significantly different from the others ($p<0.05$). For all evaluated groups TP values decreased after UV aging ($p<0.05$). The most TP reduction was observed for LU; while VM and EP were less affected. Conclusion: The highest TP was obtained with glass ceramic VE and zirconia-based BA was the most opaque restorative CAD-CAM material. UV aging caused the CAD-CAM materials get more opaque.

KEYWORDS:

Translucency, CAD-CAM.

STRATEGIES AND PARAMETERS FOR SINGLE UNIT RESTORATIONS IN ESTHETIC ZONE

Blasi Beriain, Marta

Friday, September 14th 9.00

Coauthors:	Bin, Sung		
	Blasi Beriain, Álvaro		

ABSTRACT

There are several parameters and clinical strategies that we can use to obtain esthetic optimum results in anterior single unit restorations. On the one hand there is a variety of key factors for single unit restorations: periodontal health, final shade selection, preparation design, stump shade, digital photography, polarized picture, color map and mirrored imaged technique. On the other hand one of the most important steps in our treatment is the communication with the ceramist, which will help in the outcome of our work.

This poster will describe all phases needed for the improvement of esthetics through a case presentation of a single unit restoration. Step-by-step system will be presented to match single unit restorations in the esthetic zone.

Within the limitations of this poster, step by step system will be presented to the clinicians to help them achieve good esthetic outcomes in their single unit restorations in the esthetic zone.

RESTORATION OF SIX IMPLANT WITH METAL SUPPORTED VENEERING COMPOSITE: CASE REPORT

Bostancioglu, Sibel Ezgi

Friday, September 14th 9.00

Coauthors:	Tamam, Evsen		
	Bayrak, Sertac		

OBJECTIVE:

Indirect veneering composite resins are being used as a viable alternative to porcelain due to their improved mechanical properties, satisfactory aesthetic performance, repairability and ease of handling.These materials have been promoted as a hybridization of composite and ceramic technologies.

METHODS:

55year-old male patient previously treated with maxillary six implants, consulted us. His previous history as he had implant-supported-fixed-hybrid-prothesis but he couldn't get used to vertical dimension change. All mandibulary teeth were exist with peridontal attachment lose especially at the anterior region. Anterior teeth have splinted with fiber stick.Because of destructive effect of porcelein on the opposite natural teeth we planned one piece metal supported full arch restoration with indirect-veneering-composite, [Signum(Kulzer, ABD)].

Firstly, close tray impression was taken with condensation silicone and cast was poured with type-4-dental-stone. On this model, pattern resin was used to build an acrylic scaffold around the open tray impression copings.This scaffold was sectioned into six pieces and transferred into the mouth. Final impression was taken with addition silicone. During dentine try-on, final occlusal record was taken with face-bow. Then models were transferred to semi-adjustable articulator and dentine adjustment has finished on it.Final occlusal adjustment has finished intraorally with T-Scan Occlusal Analysis System. After glazing, restoration has cemented with long-term-temporary-cement.

RESULTS:

On the 13-month-follow-up restoration has some facet cracks, occlusal wear and glaze degradation. Colour stability was acceptable. Mandibulary natural teeth has no negative change, occlusal wear or increase degree of mobility. After repairing, restoration cemented with long-term-temporary-cement.

CONCLUSIONS:

This case report describes, indirect-veneering-composite [Signum(Kulzer,ABD)] is reliable and aesthetic treatment modality for metal-supported-restorations.And its repearability is very important advantage.But physical and glazing properities must be improved.Also T-Scan Occlusal Analysis System provides accurate occlusal contact adjustment via its "tooth selection property".

KEYWORDS:

Indirect-veneering-composite, Implant, T-Scan.

RESTORING MICRODONTIA IN THE ANTERIOR REGION USING LAMINATE VENEERS. A CASE PRESNTATION

Bousiou, Andrianna

Friday, September 14th 9.00

Coauthors:	Chatzinikolaou, Meni	Papavasileiou, George	
	Charalampous, Konstantinos	Kamposiora, Phophi	

BACKGROUND:

Microdontia is a condition where teeth appear abnormally smaller in one or more dimensions. Localised form involves only a few teeth and when found in the anterior region, it creates noticeable aesthetic deficits. Most patients seek cosmetic rehabilitation either through prosthetic or orthodontic means.

AIM:

The aim of this case presentation is to administrate the rehabilitation of a 27 year old, male patient using adhesive techniques to restore with Laminate Veneers Of Lithium Desilicate Glassceramic.

MATERIALS AND METHODS:

Responding to the patient's demand for aesthetic improvement of his smile a thorough clinical, photographical and digital analysis of his smile was conducted. A digital design of the upper and lower incisors was performed and communicated to the patient. A set of resin molds was three dimensionally printed so as to facilitate the mock up procedure. The preparation of the teeth was executed through the mock up and impressions were made. IPS Emax press CAD Veneers were fabricated using the Exocad software. After try in of the veneers they were meticulously treated with Hydrofthoric acid 9% in their inner surface and coated with silane agents. Finally veneers were cemented using transparent light cured resin cement.

RESULTS:

Microdontic teeth were successfully restored with laminate veneers to resemble normal sized teeth. Diastemas were closed and the patient was highly satisfied, both functionally and aesthetically.

CONCLUSION:

Using adhesive techniques can lead to predictable aesthetic outcomes when treating microdontic cases on sound enamel tissues, as preplessly as possible.

RETROSPECTIVE 5-YEAR EVALUATION OF FPDS CONNECTING TEETH AND IMPLANT ABUTMENTS

Catic, Amir

Friday, September 14th 9.00

Coauthors:	Slat, Marko	Dzakula, Nikola	
	Pavlovic, Robert	Ceko, Zoran	

OBJECTIVES:

There are still controversies in the literature and various clinical recommendations regarding fixed partial dentures (FPDs) splinting natural teeth and implant abutments. This type of FPD has been reported prone to several types of complications. The authors decided to perform a retrospective study on a large sample and suggest recommendations based on those results.

SUBJECTS AND METHODS:

In 197 patients residual teeth served as abutments in 217 combined tooth (754) and implant (781) supported cement retained FPDs and were retrospectivelly evaluated after a period 12 to 72 months. Inclusion criteria were normal periodontal support and adequate oral hygiene. The FPDs were constructed in both jaws, and were devided into 3 topographic categories (lateral-linear bridge, arch-linear bridge, and full arch bridge) and relative to the type of distal abutment (tooth-ending and implant-ending). Complications were organized into technical and biological. Descriptive statistics, ANOVA ($p<0,05$) and Fisher exact test (alpha=0,05) were used to analyse occurence of complications and influence of tested parameters on complications.

RESULTS:

Eight of 681 implants were lost (99% survival rate, 6 in fulcrum position between teeth) over 12-72 months, and 47 demonstrated up to 1/3 of BIC loss (94% succes rate). One root resorption and 16 tooth intrusions (2%) were detected. Technical complications mostly involved ceramics chipping (6,9%) and loss of retention (9,3%), but also 28 abutment screw loosening (3,5%), and 4 abutment fractures (0,5%). Topographic category significantly influenced the number of complications with most occuring in lateral-linear bridges ($p<0,05$).

CONCLUSIONS:

Topographical type of FPD and implant position relative to connected tooth seem to significantly influence success rates and types of complications. The results suggest that FPDs with implants placed between natural teeth demonstrate significantly larger number of both biological and technical complications, and therefore should be avoided.

ORAL ADHESIVE REHABILITATION: A NEW ERA FOR ODONTOLOGY

Escobedo Martínez, Matías Ferrán

Friday, September 14th 9.00

Coauthors:	Escobedo Fedrizzi, Claudia	Pereira Nogueira, Pablo	Rozada García, Aída
	Rodríguez Lopez, Samuel	Valdes Fontela, Jairo	Olay García, Sonsoles

INTRODUCTION:

Dental agenesis, microdontia or macrodontia and mid-line deviation are frequent challenges that odontologists aim to deal with. Minimally invasive adhesive restorations with veneers are an appropriate solution for this situations, and they allow to avoid long-term treatments such as orthodontia or implantology.

OBJECTIVE:

This article aims at documenting the protocol for procedure of minimally invasive adhesive oral rehabilitation with feldespathic veneers.

CASE DESCRIPTION:

This case aims at showing both the clinical and laboratory method we usually use with this type of oral rehabilitation.
A 36 years old patient came to our Odontology Faculty showing dental agenesis (upper left lateral incisor) and dental mid-line deviation. She asked for an esthetic improvement of her maxilar anterior sector, avoiding orthodontic or implant treatments.
We started with taking dental impressions in order to guide the technician during the wax-up. Afterwards, a silicone key was fabricated in order to perform the mock-up. We took dental impressions after a minimal preparation of the teeth that would later fit the veneers. Finally, we changed the provisional (placed after the teeth grinding) with definitive adhesive restorations (feldespathic veneers) using Pascal Magne's dental luting technique.

CONCLUSION:

Nowadays, this technique is considered a predictable and minimally invasive rehabilitation procedure, useful at these type of situations, and avoiding long-term treatment.

KEYWORDS:

Feldespathic Veneers, Minimally Invasive Rehabilitation, Mid-Line Deviation, Fixed Prosthodontic, Agenesis.

CONSTRUCTION OF FIBER REINFORCED COMPOSITE BRIDGE WITH A MODIFIED TECHNIQUE

Eser, Ecem

Friday, September 14th 10:00

Coauthors:	Bagis, Bora	Mustafaoglu, Emine	
	Kutsal, Oytun	Ozkan, Irem	

AIM:

Fiber reinforced composite (FRC) bridges presents an alternative treatment type in prosthodontics. When preparing an FRC bridge, it is recommended to have an additional vertical fiber, but when using an artificial tooth for the replacement, it is difficult to form this structure. This case report describes the replacement of a missing mandibular anterior tooth with a composite tooth by using a modified FRC construction technique.

After the clinical and radiographic examination of a 48-year-old male patient, loss of the left mandibular central incisor due to periodontal disease was observed. An FRC bridge was preferred for the rehabilitation of missing tooth after the discussion of other treatment alternatives with patient.

The impression was taken using an elastomeric impression material (Zhermack zetaplus, Dentsply Sirona, Italy) without making any preparation on the adjacent teeth. The missing tooth was fabricated on the model using indirect composite material (Dialog Vario, Schuetz Dental, Germany). Vertical and horizontal grooves were prepared on the lingual side of the composite tooth and sandblasted. Adhesive resin (Singlebond Universal, 3M ESPE) was applied to these surfaces and light cured. Then, glass fiber (Everstick, GC) was embedded in the vertical groove, which was prepared deeper than the horizontal groove using flowable composite and light cured. Cavities were prepared on the lingual surfaces of the adjacent teeth, etched with %37 orthophosphoric acid (3M ESPE, St. Paul, MN), rinsed with water, and dried. Adhesive resin agent was applied then light-cured. Flowable composite was applied then the fiber bundle was placed on the corresponding grooves and cavities and light-cured. The fiber frame was covered with composite resin, light cured and polished.

CONCLUSION:

These biomechanically stable FRC bridge constructions may be a clinically efficient solution for the dentists.

AESTHETIC EVALUATION OF TEETH'S SHAPE BETWEEN DENTISTS, LAYMEN AND STUDENTS

Fiocchi, Alessandro

Friday, September 14th 10:00

Coauthors:	Aiuto, Riccardo	Re, Dino	
	Molinelli, Fabrizio		

OBJECTIVES:

The choice that will express each patient and each professional (young prothesist, senior prothesist and technician) will be compared with the shape of the face to see if there's a concordance between face shape and individual choice. These data will be interpolated to detect if they are exploitable as a selection's criterion. At the same manner, the choice of the patient is compared with professional's one to observe if there's a judgments' overlap between patient and professional.

METHODS:

We involve adult male and female, who will answer the question negatively: "are you satisfied with your smile?"
The patients mustn't have: severe front crowding , any type of structure, shape and size anomaly, prostheses, history of dental trauma or obturation of 4/5th class of Black on upper central incisor.
The study will involve 50 subjects, who will be submitted to two standardized photographs: open-mouthed face and smiling face .
The data relating to face's shape are recorded.
Three smile designs with three different dental shape (triangular, oval, square) are shown to the patients, prosthodontists and dentistry students who express their preference (the best and the worst).

RESULTS:

The patients show a concordance between the face's shape and individual choice in 33.33%, lower than the professionals (young prosthetician 43.14%, senior prosthetician 47.66% and technician 58.82%). The correspondence with the patient's choice is 29.41% with the young, 45.10% with the senior and 35.29% with the technician. If we consider the overlap with the worst smile design's choice, the similarity in the answers increases to reach 49.02% in young and 68.63% for senior and technical.

CONCLUSIONS:

The face isn't a criterion for the dental shape's chioce. The correspondence with the patient in the choice increases with the experience, there's in about 30% -50% which don't approach the patients' choice.

REHABILITATION OF A SEVERELY DAMAGED DENTITION WITH MONOLITHIC LITHIUM DESILICATE RESTORATIONS ON A PATIENT WITH BRUXISM

Gonidis, Theodoros

Friday, September 14th 10:00

Coauthors:	Chatzinikolaou, Meni	Kamposiora, Phophi	
	Sarafianou, Aspasia	Papavasileiou, Giorgos	

BACKGROUND:

The restoration of patients suffering from bruxism with means of fixed prosthetics has always been a challenge as far as the selection of the materials is concerned, due to the advanced mechanical properties required. Glass ceramics reinforced with Lithium Desilicate reach a Flexural Strength Pick of 500 MPa and present advantageous Optical properties with translucency similar to natural teeth. With the introduction of CAD-ON supported technique the indications of this material expanded to longer FPD in the posterior region.

AIM:

The aim of this clinical case is to present an aesthetic approach on the rehabilitation of dentitions subject to excessive parafunctional loads caused by bruxism, using monolithic Lithium Desilicate restorations both on teeth and implants.

MATERIALS AND METHODS:

A 67-year-old patient presented to the Postgraduate Clinic of the Prosthodontic Department seeking aesthetic and functional rehabilitation. A comprehensive clinical and radiographic examination of the patient's maxillofacial structure revealed partial edentulism with loss of posterior occlusion, severely damaged dentition due to abrasion and abfraction caused by excessive bruxing activity, high lip line and decreased occlusal vertical dimension.

A stabilization splint was administrated to the patient for three months. Centric relation was recorded and detailed diagnostic wax up was performed. Combined crown lengthening and root canal therapies were performed, implants were placed and the desired changes were transferred intraorally through Mock Up. Telio Cad Provisionals were constructed and after several months of function they were copied to the final IPS E.max Press Restorations (Ivoclar-Vivadent, Lichtenstein). Cementation took place using dual curing resin cement and a night guard was finally delivered to the patient.

RESULTS/CONCLUSION:

Treatment goal was achieved and the functional and aesthetic expectations of the patient were fully met. The successful delivery of the treatment plan can be attributed to the meticulous transfer of the diagnostic set up to all the clinical steps and to the prolonged provisional period where function, phonetics and aesthetics were optimized. Lithium Desilicate monolithic restorations can be a reliable solution when treating cases of bruxing damaged dentitions.

PROSTHETIC TREATMENT OF PERIODONTICALLY COMPROMISED ANTERIOR TEETH WITH ZIRCONIA-BASED RESTORATION

Grigoriou, Stamatina

Friday, September 14th 10:00

Coauthors:	Kouveliotis, Giorgos	Kamposiora, Phophi	
	Chatzinikolaou, Meni	Papavasileiou, George	

BACKGROUND:

Orthodontic treatment is a conservative option to treat occlusal disharmonies, in adult patients. Problems, like root resorption or alveolar bone loss, may occur to a greater degree in adults after or during orthodontic treatment. Another problem is the postreatment orthodontic relapse without the use of a retentive appliance. If periodontal disease coexists in adult orthodontic patients after the end of treatment, the prognosis of the involved teeth often gets to be worse.

AIM:

The aim of this case presentation is to analyse the rehabilitation of an adult periodontal patient with orthodontic relapse of upper anterior teeth with resorption of root apexes.

MATERIALS AND METHODS:

A 32 years old patient was referred with severe periodontitis and tooth migration after completing her long-term orthodontic therapy. Periodontal and prosthetic treatment were needed. Long-term provisional restoration dictated splinting the final restoration so as to avoid a new tooth migration. After six months splinted zirconia crowns were cemented.

RESULTS:

Soft tissue management, concerning implant or teeth restoration, is one of the key factors for a complete esthetic outcome. An extensive healing period with good provisional restoration is mandatory for establishing a stable and esthetic gingival line.

CONCLUSIONS:

Splinting periodontically compromised anterior teeth with zirconia-based fixed dental prostheses is a safe and highly aesthetical choice. The interim period is the most significant factor for the esthetic and functional result. During that time soft tissue and esthetics have to be managed in a precise and predictable way.

MINIMALLY INVASIVE REHABILITATION IN THE ESTHETIC ZONE WITH ALL CERAMIC RESTORATIONS

Kokkoni, Magdalini

Friday, September 14th 10:00

Coauthors:	Tsoutis, Konstantinos	Chronopoulos, Vasilios	
	Kalantzopoulou, Georgia		

The demand for esthetic outcome in clinical cases with complex restorative needs requires a multidisciplinary treatment approach. Healthy periodontal tissues with harmony and symmetry together with restorations virtually indiscernible from the natural dentition are a clinical challenge. The aim of the poster is to present the treatment procedure of a patient who requires biologic and esthetic rehabilitation of the anterior dentition. The case was restored with all ceramic zirconia crowns and non prep feldspathic veneers.

A female patient, aged 27, came in our dental clinic requiring improvement of her smile. Clinical and radiological examination exhibited a high smile line with uneven gingiva contour and two all ceramic anterior crowns in central incisors, that impinged on the biologic width.

A preliminary wax-up was transferred to the mouth for clinical evaluation through mock up procedure. Surgical lengthening of clinical crown, with flap elevation, from right second premolar to left second premolar was decided for biologic and esthetic reasons. Six months after surgical procedure, anterior zone was rehabilitated with two zirconia crowns in central incisors and eight non prep feldspathic veneers from right second premolar to left second premolar.

The application of feldspathic non prep veneers allowed the rehabilitation of the teeth with minimally invasive and excellent esthetic results, whereas the choice for the two zirconia crowns offered an optimal color matching due to dyschromic preparations of central incisors. Periodontal surgery permitted balancing the soft tissue profile obtaining a natural, harmonic, and pleasant smile.

REPAIR BOND STRENGTH OF RESIN COMPOSITE TO METAL ALLOYS USING DIFFERENT SURFACE TREATMENT METHODS

Korkmaz, Fatih

Friday, September 14th 10:00

Coauthors:	Ates, Sabit Melih	Baygin, Ozgul	
	Caglar, Ipek	Duymus, Zeynep Yesil	

PURPOSE:

This study evaluated the effect of different surface treatment combinations on repair bond strength of composite resin to two different framework metals (titanium and base alloy).

MATERIALS AND METHODS:

Square-shaped metal specimens were made from 2 kinds of alloy (NiCr and Ti alloy) and divided into 6 groups (n=10), which received one of the following surface treatments: 1) control (no treatment); 2) 30 m silica-modified Al2O3 particles (Cojet Sand); 3) grinding with diamond bur; 4) metal primer application; 5) 30 m silica-modified Al2O3 particles + metal primer application; 6) grinding with diamond bur + metal primer application. After surface treatment, veneering composite resin was applied. All specimens were then thermal cycled, and the shear bond strength (SBS) values were measured. The data were analysed using the 2-way ANOVA and the post hoc Fisher's LSD test with a significance level of 0.05.

RESULTS:

The grinding provided significantly higher SBS values than the other groups ($p<0.001$) with regard to the casting specimens. For the titanium specimens, the grinding+ metal primer exhibited significantly higher values than the other groups except for the grinding group. The grinding and grinding+metal primer groups exhibited similar SBS values($p>0.05$). The values of the titanium specimens was significantly higher than the casting specimens with regard to the control, grinding, the cojet+metal primer, and grinding+metal primer groups.

CONCLUSIONS:

The grinding promote an increase in adhesive bonding of composite resin to NiCr alloy. All surface treatment methods would enhance the bond strength of composite resin to Ti alloy.

CUTTING EFFICACY OF BURS WITH DIFFERENT COATINGS ON VARIOUS RECONSTRUCTION MATERIALS

Özcan, Mutlu

Friday, September 14th 10:00

Coauthors:	Al-Haj Husain, Nadin		

PURPOSE:

This study investigated the efficacy of dental burs with different surface coatings on various reconstruction materials and evaluated surface changes microscopically after multiple use.

MATERIALS AND METHODS:

Block specimens (N=30, n=6 per group) of different materials (CAD/CAM PMMA, Direct resin composite, Lithium Disilicate, CAD/CAM Nano-Hybrid Composite and Zirconia) (12x4x4 mm3) were randomly assigned to six different bur types namely, 1) Bur 1: FG1 Diamond coated (Diameter: 1.63, Intensive), 2) Bur 2: K01 (Komet) Diamond coated (Diameter: 1.56), 3) Bur 3: FG2 (Intensive), 4) Bur 4: K0 (Komet), 5) Bur 5 (Intensive Prototype), 6) Bur 6: FG307CB (Intensive Prototype) and 6) Bur 7: 021728 (Intensive Prototype). Efficacy tests were conducted using a custom made device (The Dhriller). A handpiece under water coolant (50 ml/l) was used to cut the blocks (100.000 rpm) at a depth of 3 mm under 750 g and time was recorded until 3 mm of working trace was completed. One bur was used 10 times and time was recorded for each time of use. Digital microscope pictures of unused, used and ultrasonically cleaned burs (distilled water, 10 min) were made. Data were analyzed using 2-way ANOVA, Tukey's, repeated measures tests (alpha=0.05).

RESULTS:

Both the material ($p<0.05$) and the bur system ($p<0.05$) significantly affected the cutting efficacy results (s). Burs 6 and 7 showed significantly the highest efficacy (s) for all materials tested at 10 times use (composite: 14±2/20±2; PMMA: 22+3/29±7; CAD CAM composite: 16±2/19±3; lithium disilicate: 32±4/13±3; zirconia: 61±5/107±6) ($p<0.05$). Among all materials tested, zirconia and lithium disilicate significantly required more cutting time compared to those of other materials tested. Ultrasonic cleaning did not completely remove the smear layer for PMMA on all bur surfaces. Universal Bur 7 could be advised to be used for up to 10 times for CAD/CAM PMMA, Direct resin composite, CAD/CAM Nano-Hybrid Composite and but up to 5 times for Lithium Disilicate and Zirconia.

CONCLUSIONS:

Among the tested reconstruction materials, zirconia and lithium disilicate required more time of drilling compared to other materials tested. Prototype Bur 7 could be considered as a "universal bur" for both polymeric and ceramic materials tested. Bur 7 could be recommended for 10 times of use for polymeric and 5 times of use for lithium disilicate and zirconia in order to achieve maximum cutting efficacy.

TREATING MOBILE TOOTH WITH UNIFIED LAMINATE SPLINT: A CASE REPORT

Ozen, Elifnaz

Friday, September 14th 11:00

Coauthors:	Kursoglu, Pinar		
	Turker, Izim		

OBJECTIVES:

This case report represents the treatment sequences of a patient who has been hav-ing tooth mobility on lower left central incisor for 15 years.

MATERIALS AND METHODS:

52 years old patient came with tooth mobility 15 years ago. He was diag-nosed with chronic periodontitis and tooth mobility on lower left central incisor. Patient did not want extraction, so we searched for other esthetic and functional resolutions. Mobile lower left central was planned to be splinted labially to the lower left lateral and right central with unified laminate splint system (ULS). ULS was one unit composed of three attached laminate veneers. After 15 years, patient came us with the fracture of ULS due to trauma. Fracture area was on the mobile tooth. We removed the ULS with Er:YAG laser (VersaWave, HOYA ConBio, Fremont, California) to not to harm remained tooth structure and took an impression to re-make the same laminate system. New restoration was cemented with resin cement (Variolink Veneer, Ivoclar Vivadent, Schaan, Lichtenstein).

RESULTS:

No mobility was observed after cementing. Occlusion was checked to not to direct ex-cessive forces. Patient was recalled for control sessions after 1 week, 3 months and 6 months. No occlusal problem, mobility or fracture were observed. Additionally, there were no pulpal reactions.

CONCLUSIONS:

If patient does not want his mobile tooth to be extracted and if neighbouring teeth's support and esthetic situation allows, ULS can be an alternative especially on the anterior teeth rather than fixed prosthodontic bridges. We performed a successful treatment lasting for 15 years. With this treatment method, lingually applied splint materials are no longer needed, esthetic and function are improved. This approach is minimally-invasive as possible. Additionally laminate removal with Er:YAG laser is a very practical. It prevents excessive preparation and traumatizing the tooth when used with water cooling.

KEYWORDS:

Mobility; Unified laminate splint; Laminate removal; Er:YAG laser.

DIGITAL, CONVENTIONAL OR HYBRID WORKFLOW FOR FIXED PROSTHODONTICS?

Pachiou, Aspasia

Friday, September 14th 11:00

Coauthors:	Armeni, Maria	Sykaras, Nikitas	
	Kouveliotis, Georgios		

INTRODUCTION:

Digital technologies have radically changed the way Dentistry is performed. Designing and manufacturing digitally in laboratory procedures is well established and during the last decade digital impression was added creating a fully digital protocol. Nonetheless, all clinical and laboratory steps can still be proceeded conventionally or in a hybrid way where conventional and digital procedures can be combined.

AIM:

The purpose is to compare the workflow of fixed prosthesis fabricated digitally to those with conventional techniques and to determine whether the hybrid technique can be safely performed in everyday practice or not.

MATERIALS & METHODS:

Scopus, PubMed and Google Scholar databases were electronically searched and pooled data were statistically analyzed, and filtered on a timeline scale of the last 4 years.

RESULTS:

Dental restorations fabricated via the digital impression technique presented statistically similar marginal discrepancies compared with those impressed conventionally. There was no statistical difference among the conventional impression/CAD crown, conventional impression/press crown, and digital impression/CAD crown with regard to internal fit; however, the combination digital impression/press crown was proved to be the least accurate. As for the cost of each option, the equipment needed for the digital workflow remains at a higher range for now, requiring frequent updates which will be surpassed by even newer technology. Concerning the time needed, initially it may be longer for the clinician, and that is anticipated considering the period always needed to get used to anything innovative; yet that should not be discouraging even for dentists already used to the analogue methods, for even conventional dental impressions can be further digitized with an extraoral scanner, thus leading to a hybrid technique. Last but not least, patients' satisfaction with digital impressions was found to be significantly higher.

CONCLUSINS:

Digital techniques can be a viable alternative to conventional methods, for both ensure the clinically fully acceptable fabrication of fixed restorations.

PRACTICES OF ALL-CERAMIC RESTORATIONS IN ABIDJAN, CôTE D"IVOIRE: AN OVERVIEW

Pesson, Muller Delon

Friday, September 14th 11:00

Coauthors:	Tra, Bi Zaouri Roberson	Bakou, Dorcas	
	Kouame, Alexandre Koffi	Djeredou, Kouadio Benjamin	

INTRODUCTION:

All-ceramic restorations had been used moderately because of their poor mechanical properties. But since the addition of alumina and zirconia have increased this desired resistance to the all-ceramic restorations, they are increasingly used both in conventional and adhesive restorative dentistry.

OBJECTIVE:

Our study aims to present the current data on the all-ceramic restorations, on the other hand to assess the knowledge and practices of all-ceramic restorations by dentists in Côte d'Ivoire.

MATERIALS AND METHODS:

This study targeted 158 dentists from the private and public sectors of the Abidjan district and the academic staff from the Patient care services of the University Hospital of Cocody-Abidjan, through a self-administered questionnaire from July 2017 to October 2017. The data entered was processed using the software Epi-info7, Word2013, Excel2013 under Windows 8.1. Correlation was done using the Fisher test. The level of significance was set at $p \leq 5\%$.

RESULTS:

The analysis of the collected data revealed that almost all (97.4%) of the sample knows the all-ceramic restorations. For 81.9% of practitioners find it the most aesthetic and 55.6% of practitioners find it biocompatible. However, just over half (51.9%) of practitioners do not perform all-ceramic restoration. The knowledge of the all-ceramic crown is significantly influenced by professional experience ($p = 0.001$) in terms of correlation. Indeed, practitioners with knowledge of the all-ceramic restorations are mostly young (less than 15 years of professional experience) with 82.7% of the sample. The use of the all-ceramic restorations is also statistically related to the frequency of bonding ($p = 0.016$).

CONCLUSION:

The all-ceramic restorations not only allow the realization of aesthetic prostheses but also larger areas. This study shows that the All-ceramic restorations are well known to dentists, but their practice is slowly evolving.

KEYWORDS:

All-ceramic restorations, Fixed prosthesis, Clinical practice.

UPPER ARCH ZIRCONIA REHABILITATION USING BOPT TECHNIQUE: A CASE REPORT

Quiñones Pérez, Geraldine

Friday, September 14th 11:00

Coauthors:	Ortuondo Becerra, Claudia	García Serdio, Sara	Peláez Rico, Jesús
	López-Suárez, Carlos	Tobar, Celia	Suárez García, María Jesús

INTRODUCTION:

Over the last decade, the demand for non-surgical aesthetics treatments has been increased. Recent developments in materials and preparation techniques, such as BOPT (Biologically Oriented Preparation Technique), make possible a correct management of the gingival tissue, fulfilling the patient's expectations.

CASE REPORT:

Patient of 75 years of age, who attended the Postgraduate Program in Prosthodontics and Dental Occlusion at UCM with a high aesthetic demand in the upper arch, and prefers non-surgical restorative treatments. Additionally had desire to preserve the remaining dental structure. After the patient's exploration, a complete rehabilitation of the upper arch with zirconia restorations was planned, using the BOPT technique.

CONCLUSIONS:

For a upper arch rehabilitation, the zirconia is a material that meets mechanical, functional and aesthetic requirements. The correct planning and dental preparation, and gingival tissue management using the BOPT technique, allowed us to obtain a successful treatment in an elderly patient.

KEYWORDS:

Full mouth rehabilitation; dental zirconia; monolithic zirconia; zirconia bridges.

FRACTURE LOAD OF PROSTHETIC FRAMEWORKS THERMO-CYCLED WITH SYNTHETIC SALIVA

Rodríguez Alonso, Verónica

Friday, September 14th 11:00

Coauthors:	Tobar Arribas, Celia	Suárez García, Mª Jesús	
	Castillo de Oyagüe, Raquel		

PURPOSE:

To investigate the fracture load (FL) and behaviour of prosthetic frameworks for tooth-supported fixed dental prostheses (FDPs) fabricated with different subtractive CAD/CAM technologies and materials after thermo-cycling in synthetic saliva.

Methods: Three groups (n=10 each) were established depending on the subtractive CAD/CAM system and material used for constructing 3-unit posterior structures for FDPs with an intermediate pontic: 1 (MM): milled Co-Cr (Starbond CoS DISC, Scheftner); 2 (L): zirconia (LavaTM Zirconia, 3M-ESPE) and 3 (P): PEEK (Bio-P, DEGOS).

All of the unveneered samples were randomly luted in standard fashion onto two chamfered stainless-steel master dies using conventional glass-ionomer cement under a constant seating pressure of 50N for 10min.

The specimens were thermo-cycled for 6,000 cycles between 5°C and 55°C baths in climatic chamber (CCK0/81, Dycometal) containing artificial saliva. Then, a bending test was carried out until fracture using a universal testing machine (UTM, ME 405/10, SERVOSIS) at cross-head speed of 1mm/min.

The data were analyzed using the one-way ANOVA and the Ryan-Einot-Gabriel-Welsch F test for post hoc comparisons (α=0.05). The two-parameter Weibull distribution including scale and shape values were calculated.

RESULTS:

MM structures recorded the significantly highest FL values, followed by PEEK, which, in turn, registered significantly higher FL values than did Z samples. These differences were also reflected by the Weibull scale parameter. No significant differences were found concerning the Weibull shape parameter.

CONCLUSIONS:

Milled Co-Cr samples showed the highest FL values, followed by PEEK and Zirconia, which demonstrated the lowest resistance to axial loads. However, within each group, the three materials showed comparable behaviour about the predictability of failure. All tested groups presented fracture load values above 1000N, seeming suitable for resisting loads in the posterior region. The connectors were the most fragile area in all cases, which should be considered to establish the occlusion in clinical rehabilitations.

KEYWORDS:

CAD/CAM, zirconia, PEEK, chromium alloys.

FIBER-REINFORCED COMPOSITE BRIDGES WITH A VESTIBULAR FELDSPATHIC VENEER: NEW TECHNIQUE

Rodríguez López, Samuel

Friday, September 14th 11:00

Coauthors:	Valdés Fontela, Jairo	Mauvezín Quevedo, Mario	Escobedo Martínez, Matías
	Martín Fernández, Elena	Olay García, Sonsoles	

INTRODUCTION:

Since the fiberglass was introduced into odontology procedures, its use on this field has been increased due to the improvement of adhesive techniques. This has allowed to make bridges of direct preparation, reducing the cost of treatment and avoiding the abutment teeth craving.

OBJECTIVE:

This study aims at documenting the protocol of a fiber-reinforced composite bridge (FRCB) with a new technique, followed by a vestibular feldspathic veneer attachment, versus the traditional technique for this procedure.

CASE DESCRIPTION:

A 45 years old male came to the Odontology Faculty lacking his 2.5 and 1.4 teeth, so we proposed him a minimally invasive procedure. It consisted on making two FRCB with a new technique in "T", allowing to release the embrasure, in order to place the fiberglass conector next to the contact point. This grants an easier cleaning of the pontic. Afterwards, we craved the 2.5 pontic vestibular surface in order to attach a feldspathic veneer with the Pascal Magne's ceramic-restoration technique. On the contrary, we made a complete pontic composite reconstruction on the piece 1.4, through a direct technique.

One year later we proved that this new proposed technique had been succesful, as the feldspathic veneer piece showed better esthetic outcomes.

CONCLUSION:

Currently, these esthetic restoration techniques allow to perform economic minimally invasive procedures, which are easily reproducible. For this reason, FRCB use could be a good alternative to other agressive and expensive treatments, as long as both its indications and the adhesion protocol are respected.

KEYWORDS:

Fiber-Reinforced Composite Bridge, Feldspathic Veneer, Fiber Bridge, Fixed Prosthodontics, Dentistry.

MARGINAL FIT OF CO-CR PROSTHETIC STRUCTURES CONSTRUCTED BY DIFFERENT TECHNOLOGIES

Tobar Arribas, Celia

Friday, September 14th 11:00

Coauthors:	Castillo de Oyagüe, Raquel	Suárez García, María Jesús	
	Rodríguez Alonso, Verónica		

PURPOSE:

Non-noble alloys, such as those of Co-Cr, are still the most used materials for frameworks in fixed dental prosthesis (FDP). The alloy composition depends, among others, on the manufacturing technology applied, which may directly affect the alloy microstructure and main properties.

The aim of this in vitro study is to evaluate the marginal fit of Co-Cr FDP structures fabricated using casting and the following CAD/CAM technologies: direct metal laser sintering, hard metal milling and soft metal milling.

METHODS:

Forty posterior 3-unit Co-Cr FDP frameworks with intermediate pontics were constructed over two machined stainless-steel abutments that were screwed to a platform. The next groups were established depending on the manufacturing procedure utilized (n=10 each): CT: casting with wax patterns; LS: direct metal laser sintering; HM: hard metal milling; and SM: soft metal milling. The unveneered frameworks were luted onto their corresponding abutments and were assessed under scanning electron microscopy (SEM) (JSM-6400, JEOL) to determine the post-cemented vertical marginal discrepancy. The INCA® software was run to capture and calibrate the images at the interface, and the Image) software was used to perform the measurements. The misfit data were statistically analyzed, applying the Kruskal-Wallis test. The significance level was set at α=0.05.

RESULTS:

The hard metal milled frameworks obtained the lowest misfit values (38,66±18,27µm) followed by the soft milled ones (39,78±8,77µm), the casting structures (40,10±10,43µm) and, finally, the laser sintered frameworks (41,84±10,35 µm). However, no significant differences in misfit were found among the tested groups (P=0,469).

CONCLUSIONS:

Although more studies are necessary, casting, direct metal laser sintering, hard metal milling and soft metal milling techniques seem to guarantee comparable and clinically acceptable misfit values for fabricating posterior FDP structures.

KEYWORDS:

Dental Marginal Adaptation, Denture Partial Fixed, Technology Dental, Chromium Alloys, Microscopy Electron Scanning.

POSTERS

Implantology

HOME

POSTERS

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CARBONE	ANDREA	Italy	Comparative Analysis between Prosthetic Structures on Implants: Casting, Milling, Sintering.		Sep 14th 9:00	Poster Area
DIKER	EMRE	Turkey	Evaluation of Stresses on Different Diameters of Ti-Zr Alloy Implants by 3D-FEA.		Sep 14th 9:00	Poster Area
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PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
KAHRAMANOGLU	ERKUT	Turkey	Clinical and Radiographic evaluation of different implant systems: Two year follow up.		Sep 14th 10:00	Poster Area
KOUVELIOTIS	GEORGIOS	Greece	Prosthetic complications in implant supported restorations.		Sep 14th 10:00	Poster Area
LEE	JAE-HYUN	South Korea	Influence of Luting Methods on Cement Remnants in Implant Restorations.		Sep 14th 10:00	Poster Area
LI RODRÍGUEZ	JEANETTE KATHERINA	Spain	Implant placement using a three-dimensionally printed splint.		Sep 14th 11:00	Poster Area
PERSIC KIRSIC	SANJA	Croatia	The 3-years longitudinal study of mini dental implants for retention of removable pratial denture in Kennedy Class 1 patients.		Sep 14th 11:00	Poster Area
SERTGOZ	ATÝLLA	Turkey	New Prosthetic Approach to Full-Arch Implant Prosthesis Using Multi-Functional Healing Abutment.		Sep 14th 11:00	Poster Area
VIECO	FAUSTINO	Spain	Implantologic Connections.		Sep 14th 11:00	Poster Area
ZENG	JIANYU	China	Influence of marginal bone resorption on two mini Implant-Retained Mandibular overdentures: In Vitro Assessment.		Sep 14th 11:00	Poster Area

THE IMPACT OF CANTILEVER DIRECTION ON THE CLINICAL OUTCOME OF IMPLANT-SUPPORTED FIXED DENTAL PROSTHESES

Alalili, Hayat

Friday, September 14th 9:00

It has been shown that dental implants tend to lose bone over time, which ultimately results in soft tissue loss. Recent studies, however, suggest that the design of implant-supported prostheses may contribute to peri-implant tissue stability.

AIM:

To evaluate retrospectively radiographic bone loss around implants supporting cantilevered pontics with either mesial or distal direction, and to identify the technical complications that may occur with mesial/distal cantilever fixed dental prosthesis.

MATERIAL AND METHODS:

The Records of 14 partially dentate patients, aged between 45-83 years (mean age 69.4), who were treated from March 2003 to 2015, with mesial/distal cantilever implant-supported fixed dental prostheses were reviewed. For each implant, the radiographs from the time of implant loading were compared to radiographs from the last follow-up visit.

THERE WERE EVALUATED REGARDING:

1/ The distance from widest diameter of the abutment to the crest of the peri-implant bone.
2/ The radiographic changes of marginal hard tissue height from the time of implant loading compared to the time of the last follow-up appointment.
Technical complications were noted as (screw-loosening, prosthesis de-cementation and prosthesis loosening).

RESULTS:

A total of 28 cantilever implant-supported fixed dental prostheses supporting 32 cantilever units were evaluated. Of these 9(28.1%) had mesial cantilevers, while 12(71.9%) had a distal cantilever. There was equal number of males and females (7 males and 7 females). The non-smokers were 43%. All technical complications at prosthesis and implant level occurred in distal cantilevered FDPs (prosthesis loosening P= 0,73, prosthesis de-cementation P= 0.73 and implant abutment screw-loosening: P= 0.37). All technical complications occurred at cantilevered pontics length ≤ 10 mm. Mesial and distal bone loss on implants adjacent to the cantilevered units was not state different if cantilever direction was mesial or distal (mesial cantilever P= 0.53, distal cantilever: P= 0.82)

CONCLUSION:

Within the limitation of this study, marginal bone loss does not seem to be influenced by the direction of cantilever extensions mesial or distal. Minor technical complications were found with a distal cantilever (prosthesis loosening, prosthesis de-cementation and implant abutment screw-loosening).

COMPARATIVE ANALYSIS BETWEEN PROSTHETIC STRUCTURES ON IMPLANTS: CASTING, MILLING, SINTERING

Carbone, Andrea

Friday, September 14th 9:00

Coauthors:	Álvarez Sirvent, Alejandra		
	Planas Santos, Fernando		

INTRODUCTION:

The therapeutic objective of the dental prosthesis is to aesthetically and functionally rehabilitate the stomatognathic apparatus. Within the therapeutic possibilities of the prosthesis, we can highlight the fixed prosthesis versus the removable prosthesis. The incursion of the implantology in the dental prosthesis has supposed a big advance with his varieties and limitations.

OBJECTIVE:

To review the existing literature of the last ten years to establish in a comparative way the stress generated in prosthetic structures screwed on implants, according to the manufacturing technique.

MATERIAL AND METHOD:

A bibliographic search was carried out in the PubMed database according to the selected keywords, according to the terms MSH and according to selection criteria. These articles were analyzed to establish the results of this study.
Keywords: Prosthesis on implants, passive adjustment,

RESULTS:

A total of 92 articles were found according to the search strategy, applying the inclusion and exclusion criteria, 16 articles were selected that fulfilled the study objectives.

DISCUSSION:

The method that provides the best passive fit to the structure screwed on several implants is the milling, followed by the sintering and finally the casting. Even so, all show a clinically acceptable passive fit.

CONCLUSION:

The CAD / CAM method is a viable alternative to conventional casting, presenting a large number of advantages that benefit both the patient and the dentistry professionals.

EVALUATION OF STRESSES ON DIFFERENT DIAMETERS OF TI-ZR ALLOY IMPLANTS BY 3D-FEA

Diker, Emre

Friday, September 14th 9:00

Coauthors:	Zeren, Z Ozlem		
	Terzioglu, Hakan		

OBJECTIVES:

Titanium as a dental implant material is commonly used but there are still alternative material searches for titanium. Inadequacy of fatigue and fracture strength of titanium in narrow diameter implants, has ensured Ti-Zr alloy implant material to be improved. The properties of a material and the principles of biomechanics ought to be known well and applied correctly.
The aim of this study is to evaluate how the stresses in implants and supporting bone tissue has changed; according to changes in implant diameters, when Zr and Ti-Zr alloy implants, which are considred to be alternatives for titanium are used, by 3D finite element analysis method.

MATERIALS AND METHOD:

In this study three different implant materials (titanium, zirconium, titanium-zirconium alloy)were used. The length of implant was kept constant but the diameter was increased by 0.10 mm incrementals from 3.00 to 5.00 mm. 21 implant models had been formed for each material. Totally 63 study models had been used by applying forces seperately for each model in oblique (45°) direction.
The effect of the implant materials and implant diameters to maximum and minimum principle stresses in cortical and trabecular bone and von Mises stresses which were occured in implant and abutment screw, had been evaluated.

RESULTS:

In the limits of this study, the results showed that changes in implant diameter and implant material affected the force distribution. The increasing of implant diameter caused to the decreasing of stress quantities and stress areas for each three implant materials. Zirconium had lower stresses in implant supporting bone tissues, because it has higher elasticity modulus than Ti and Ti-Zr alloy.

CONCLUSION:

The stress differences in narrow diameters were quite significant but the differences were decreased in wider diameters. In narrow diameters, Ti-Zr implants had showed very good results under loading than Ti and Zr implants.

KEYWORDS:

Finite Element Analysis, Dental implants, Titanium, Zirconium, Alloys.

EVALUATION OF PATIENTS" SATISFACTION AFTER DENTAL IMPLANT REHABILITATION

Erdinç, Gülbahar

Friday, September 14th 9:00

Coauthors:	Bülbül, Mehmet		

Dental implants are widely used in the treatment of tooth loss. Long-term follow-up of patients rehabilitated with dental implants is important to evaluate the success of treatments. The aim of this study is to evaluate the satisfaction of prosthesis use of dental implant rehabilitated patients in our clinic.

METHOD:

When the patients who completed the treatment came to the control session, ten questions were asked and a questionnaire study was conducted. Their answers were scored with Visual Analogue Scale (VAS) and their satisfaction with implant prostheses was evaluated. It was also directed to some questions that reflect the sociodemographic characteristics of the patients. Twenty female (49.8) and twenty males (52.6) patients with a mean age of 51.2 years were included in the study. According to the obtained results, implant supported fixed prosthesis was applied more (85%) than removable prosthesis.

RESULT:

SPSS was used for statistical analysis. There was no statistically significant difference between satisfaction, age, education level and prosthesis type for this study. However, when the questions were evaluated within themselves, the patients stated that they were satisfied with respect to the functional result of 90% and the aesthetic result of 85%. When compared with implant and natural tooth cleanability, 22.5% of patients stated that implant-supported prosthesis cleaning is more difficult.67.5% said they were getting what they wanted at the end of treatment. 77.5% of the patients stated that they could have the same treatment if needed, and 87.5% could suggest this treatment to their friend/relatives. 20% of the patients stated that the cost of the treatment was not reasonable at all.

CONCLUSION:

Consequently, when the results of this study and previous studies are evaluated, it can be said that implant supported prosthesis is a common treatment with high satisfaction rates.

KEYWORDS:

Patient Satisfaction, Questionnaires, Prostheses and Implants.

PERI-IMPLANT INFLAMMATION AND MARGINAL BONE LEVEL CHANGES IN RELATION TO PROXIMITY WITH ADJACENT TEETH

Fokas, George

Friday, September 14th 9:00

Coauthors:	Fan, Michael	Mattheos, Nikos	
	Ng, Tung		

OBJECTIVES:

Purpose of this retrospective study was to assess radiographic bone changes and prevalence of peri-implant tissue inflammation around neighboring teeth and implants supporting single-unit fixed dental prosthesis (FDP), in relation to implant-positioning and characteristics. Additionally, implant survival and success rates were evaluated.

MATERIAL AND METHODS:

Patients with ≥1 single unit, screw retained, implant-supported FDP on bone level (BL) or tissue level (TL) implants with minimum one year in function were recruited. Clinical and radiographic examinations were carried out by 5 calibrated clinicians (ICC 0.96). The radiographic vertical and horizontal (mesio-distal) position of the implants was identified in relation to anatomic landmarks around teeth. Probing depth (PD) and bleeding on probing (BOP) at 4 sites and radiographic bone level around implants and adjacent teeth at the time of implant placement, prosthesis delivery, and the most recent review were assessed.

RESULTS:

98 patients with 195 implants were evaluated. Mean observation period was 37.8 months, survival rate 99.6% and success rate 83.6%. Significantly greater interproximal bone loss around teeth ($p<0.05$) and higher prevalence of interproximal peri-implant inflammation occurred, when horizontal distance of BL implants was <1mm from adjacent teeth. The same, however, was not observed with TL implants. Proximity to adjacent teeth did not affect bone loss of BL or TL implants. Corono-apical position of the implant did not significantly impact the marginal bone loss of teeth nor implants. Bone loss surrounding implants did not appear to correlate with bone level changes of adjacent teeth.

CONCLUSION:

Proximity of implants to adjacent teeth with less than 1mm of distance leads to increased interproximal peri-implant inflammation and bone resorption at the teeth adjacent to bone level implants.

INFLUENCE OF FIXED PROSTHETIS DESIGN ON THE RISK OF DEVELOPING PERI-IMPLANTITIS

Hernández Ruiz de Azcárate, Fernando

Friday, September 14th 9:00

Coauthors:	Serrano Torrecilla, Benjamín		

OBJECTIVES:

Evaluate the potential risk associated with the design of implant-supported prosthesis, which favors the retention of bacterial biofilm and restricts appropriate hygiene access by the patient and the dental professional, leading to an increased risk of developing peri-implant diseases.

METHODS:

Literature review and report of 7 cases of patients, treated on the Periodontics Department of the Complutense University, with peri-implantitis influenced by the prosthesis design as a risk factor.

CONCLUSION:

An exhaustive and detailed planning of the design of the implant-supported prosthesis is essential to reduce the number of peri-implantitis cases. The correct adjustment of the implant components and their superstructure should be ensured to avoid creating new niches of bacteria. The position of the implant and the superstructure should be designed in such a way that it facilitates access for a regular diagnosis and that allows to apply measures of personal and professional hygiene.

KEYWORDS:

Peri-Implantitis, Dental Implants, Prosthesis Design, Peri-Implantitis Risk.

CEMENTED AND SCREW RETAINED IMPLANT SUPPORTED RESTORATIONS

Juncar, Raluca

Friday, September 14th 10:00

Coauthors:	Popa, Daniela		
	Juncar, Mihai		

INTRODUCTION:

Implant supported restorations are widely spread the gingival health is important to assure long term success of the reconstruction. The traditional cemented restorations could be blamed for tissue inflammation due to cement residues left intrasulcular. Screw retained crowns and bridges try to eliminate this effect, thus mentaining a healthy tissue and achieving a better rate of retrievability

MATERIAL AND METHOD:

A number of 28 patients with 49 implants loaded with fixed restorations were assessed in terms of reconstruction type (cemented /screw retained), BOP, hight of attached gingiva, gingival biotype (TRAN), mucositis/peri-implantitis signs of ceramic cracks and screw loosening. The periodontal assessment was made with a Hu-Friedy silicone tip probe for implants. The fixed mucosa respondes differently to inflammation, parafunctional habbits, trauma. Using the TRAN method the gingival biotype is considered thin if the outline of the probe is showed through the the gingival margin of the sulcus. This technique is considered to be highly reproductible. Mucositis is the inflammation of peri implant mucosa . This stage is reversible whereas peri-implantitis an extension of the inflamed mucosa is more complicated to treat thus it involves the bone supporting the implant.

RESULTS:

From the 49 implants included in this study 15 presented signs of mucositis, whereas no implant had signs of peri-implantitis. Screw lossening was present in 2 single crowns. The minimum value of fixed mucosa was 2mm while the maximum was 7 mm. The need of retrievabilty was found in 2 out of 49 implants, in both cases the restorations were single crowns.

CONCLUSION:

The appearance of soft tissue complications of implant supported restoration is highly present in the literature. There are studies correlating mucositis and peri-implantitis with residual cement our study comes to support these information.

Key words: implant, screw retained, mucositis.

INFLUENCE OF SMOKING ON FAILURE RATE OF DENTAL ENDOSSEOUS IMPLANTS

K Alzarea, Bader

Friday, September 14th 10:00

BACKGROUND AND OBJECTIVE:

The use and remarkable success of endosseous implants has led to an interest in identifying the factors associated with implant failure. The aim of the present study was to evaluate the influence of smoking on the failure rate of dental endosseous implants.

METHODS:

The present study included 146 patients (smokers and non smokers) with a total of 352 implants. The study included 89 males and 55 females. Statistical analysis was done using Z-proportionality test and Chi-square test. The statistical significance was set at 5% level of significance ($p<0.05$).

RESULTS:

Out of a total of 352 implants, males (73.58%) had higher implants as compared to females (26.42%). The failure rate in smokers was 41.83 % and in non smokers was 24.01%. Twenty four (48.97%) of the smokers with <10 years of duration had implant failures and 25 (51.03%) of smokers with >10 years of duration had implant failures as compared to 61 (24.01%) of non-smokers who had implant failures. This difference was statistically significant ($p=0.0001$). Statistically significant difference was also observed in the association between the number of packets of cigarettes smoked with non smokers ($p=0.0001$). Higher implant failures were observed in the posterior mandible (61.2%) and in implants with length <10mm (77.5%) in smokers.

CONCLUSION:

Even though smoking has not been contraindicated with dental implants but the findings of the present study suggest that it has a significant effect on survival of implants. A protocol for cessation of smoking around the time of surgery should be advocated along with awareness to the patients about the adverse effects of smoking.

KEYWORDS:

Implant; Endosseous; Smoking; Failure.

CLINICAL AND RADIOGRAPHIC EVALUATION OF DIFFERENT IMPLANT SYSTEMS: TWO YEAR FOLLOW UP

Kahramanoglu, Erkut

Friday, September 14th 10:00

Coauthors:	Aslan, Y.Umut	Özkan, Yasemin	
	Özkan, Yaşar		

OBJECTIVES:

The aim of this study was to evaluate the clinical and radiographic outcome of two different early-loaded implant systems in the esthetically demanding regions.

MATERIAL AND METHODS:

In the present study, patients were treated with two different implant systems (Camlog Biotechnologies, Basel, Switzerland and Institut Straumann AG, Waldenburg, Switzerland) supported by all ceramic single crowns and followed up for 2 years. Thirty Camlog implants were placed in 25 patients and 55 Straumann implants were placed in 47 patients. The implants were evaluated by clinical and radiographic parameters. Clinical parameters like plaque index (PI), sulcus bleeding index (BI), peri-implant probing depth (PD), and marginal bone loss (MBL) were recorded. Repeated-measurement ANOVA, Kruskal-Wallis test, Wilcoxon signed rank test and paired samples test were used for statistical analysis.

RESULTS:

At the recall examinations, all implants were successfully integrated, demonstrating healthy peri-implant soft tissues as documented by standard clinical parameters. The mean MBL at 2 years was 0.12 mm ± 0.13 for Camlog implants and 0.08 mm ± 0.012 for Straumann implants. No statistically significant differences were found between the Camlog and the Straumann implant systems. Soft tissues were clinically healthy. The mean PD at baseline was 2.15 mm ± 0.62 for Straumann implants and increased to 2.24 mm ± 0.61 at 2 years but the difference was statistically insignificant. In addition, the mean PD at baseline was 2.82 mm ± 0.60 for Camlog implants and increased to 3.00 mm ± 0.65 at 2 years but the difference was statistically insignificant.

CONCLUSIONS:

Both of the implant systems are clinically satisfying. No statistically significant differences were found between the implants studied and the marginal bone loss was small for both systems.

KEYWORDS:

Early load, clinical and radiographic outcome, anterior zone, different implant systems

PROSTHETIC COMPLICATIONS IN IMPLANT SUPPORTED RESTORATIONS

Kouveliotis, Georgios

Friday, September 14th 10:00

Coauthors:	Chatzinikolaou, Meni	Kamposiora, Phophi	Karaiskou, María
	Sarafianou, Aspasia	Papavasileiou, Georgios	

BACKGROUND:
Implant restorations changed the treatment options that clinicians have. Though different prosthetic solutions may reveal mechanical and biological complications.

AIM:
The aim of this presentation is to describe the prosthetic complications that occur when restorations are in function. These complications refer to either single unit restorations until full mouth restorations.

MATERIALS AND METHODS:
Prosthetic complications that are related to fixed or removable implant restoration are presents through different clinical cases. The different techniques, materials and clinical stages that led to failure of these restorations are also presented.

RESULTS:
Screw loosening or fracture, abutment fracture, porcelain chipping, fracture of the retention bar in removable restorations are few of the prosthetic complications that appear when implant restoration are in service.

CONCLUSION:
The reasons for implant restorations failure and the risk factors are related to clinical parameters (clinical techniques, implant system etc) which are determining the success or the presence of complications when restorations are in function

INFLUENCE OF LUTING METHODS ON CEMENT REMNANTS IN IMPLANT RESTORATIONS

Lee, Jae- Hyun

Friday, September 14th 10:00

Coauthors:	Han, Jung-Suk	Yeo, In-Sung	Lee, Su-Young
	Kim, Sung-Hun	Yoon, Hyung-In	

The aim of the study was to evaluate the amount of cement remnants left on cement-retained implant restorations after luting with various methods. Forty titanium abutments and metal crowns were fabricated and split into four groups (n= 10 each) according to the luting methods used: group TB: luting with zinc oxide-eugenol cement; group TBV: luting with zinc oxide-eugenol cement, after applying a separating agent on the transmucosal area of the abutment; group P1: luting with methacrylate cement; group P1V: luting with methacrylate cement, after applicating separating agent on the transmucosal area of the abutment. The abutments were manually tightened on a model with simulated gingiva. After cementing crowns, excess cement was removed and the restoration-abutment unit was unscrewed. All quadrants of the specimens and the model were photographed. The area of cement remnants was calculated in pixels. First, differences in findings according to the luting material and method were analyzed using one-way analysis of variance. Next, Kruskal-Wallis and Mann-Whitney tests were used to compare the amount of residual cement among restoration surfaces ($p \leq 0.05$). The amount of cement remnants (in pixels) was significantly smaller in groups TBV (6106.4±2053.22) and P1V (7270.7±2869.78) than in groups TB (12150.48±4400.69) and P1 (14184.65±3789.64). The type of luting material did not significantly affect the results. Cement remnants were more abundant on the mesial (12801.93±5150.4) and distal (12734.7±7145.19) sides of the restoration than on the buccal (5940.25±4832.10) and lingual (8235.35±5523.02) sides. In conclusion, the type of luting material did not affect the amount of cement remnants. More attention is warranted during removal of excess cement from the mesial and distal sides of the restoration than from the buccal and lingual sides.

IMPLANT PLACEMENT USING A THREE-DIMENSIONALLY PRINTED SPLINT

Li Rodríguez, Jeanette Katherina

Friday, September 14th 11:00

Coauthors:	Diaz Durany, Miguel		

BACKGROUND:

Dental implants are an ideal option for replacing missing teeth. Currently, digital technology is part of the daily treatment courses offered in our dental clinic. Implantology is increasingly utilizing guided surgery in order to prevent deviation of implants whose correct placement will be crucial to achieving success of both the implant and the prosthesis.

AIM:

To describe a clinical case so as to demonstrate the flow of guided surgery during which measurements of existing deviations were taken at various levels: coronal, apical and angular.

MATERIALS AND METHODS:

We describe a clinical case of a 40-year-old patient with an edentulous partial sector (tooth 24). Guided surgery was performed following a digital flow using a three-dimensional radiograph taken of the cone beam computerized tomograph (CBCT), an implant planning software and the stereolithographic files (STL) from the extraoral scanner. The guided splint was produced using a three-dimensional printer. The tools of the implant planning software were used not only to measure the deviations, but also to establish the most coronal and apical points of both placed and planned implants, thus helping us establish the coronal, apical and angular deviation of each of them.

RESULTS:

Tooth 24	mesial-distal	vestibular-palatine
Coronal Deviation	0,04mm	0,10mm
Apical Deviation	0,16mm	0,45mm
Angular Deviation Coronal	1,66º	0,75º
Distance apical vertical	0,43mm	0,40mm

CONCLUSIONS:

1. The clinical case described is a single one with no statistical inferential value. However, it helps us propose a new research protocol in guided surgery.
2. Our results match those found in the existing medical literature.

The authors affirm that there are no conflicts of interest.

THE 3-YEARS LONGITUDINAL STUDY OF MINI DENTAL IMPLANTS FOR RETENTION OF REMOVABLE PRATIAL DENTURE IN KENNEDY CLASS 1 PATIENTS

Persic Kirsic, Sanja

Friday, September 14th 11:00

Coauthors:	Kovacic, Ines	Disha, Visar	
	Kranjcic, Josip	Celebic, Asja	

The 3-years longitudinal study of mini dental implants for retention of removable pratial denture in Kennedy Class 1 patients

OBJECTIVES:

To evaluate clinical and radiographic performance of slim mini dental implants (MDI) in strategic positions to retain and support partial removable dentures (RPDs).

MATERIALS AND METHODS:

A convinience sample of 76 partialy edentulous patients without posterior teeth, Kennedy Class 1 and slim alveolar ridges (<5 mm) were included. Two MDIs (2.0-2.5 mm wide, 10-14 mm long) inserted adjecent to the last tooth or at one-tooth width posteriorly changed linear into more favorable polygonal denture support. The RPDs had lingual or palatal plate major connectors. The marginal bone loss (MBL) at the mesial and distal side was assessed on periapical and/or panoramic radiographs. The magnification error was corrected: corrected crestal bone level = measured crestal bone level × actual implant length/measured implant length. Implant success and survival rates, plaque index, technical difficulties, and patient centered outcomes were assessed.

RESULTS:

Four implants were lost before loading, but were substituted, one failed again and that patient was excluded, finally 152 implants were loaded resulting in 97,4% surgical success. Two patients lost one MDI each after 1 year in the maxilla. Two MDIs were further lost in the maxilla and two in the mandible after 3 years. The survival rate of loaded implants was 96%, total survival rate 93.6% (2.6% early implant loss + 4% late implant loss). There was no severe periimplantitis, median plaque score was 1; at the 1-year follow-up MBL ranged from 0.0 - 1.9 mm (x=0.61 ±0.52 mm); at the 3-year from 0.0 – 2.4 mm (56 patients) (x=0.70 ±0.71 mm). No denture fractures (CrCo framework) were reported. At the 1st year examination one matrix loosening and 2 o-rings loss were found; 2 more matrices loosening, 3 o-rings loss and 8 o-rings that needed replacement were found. After the treatment the OHRQoL (OHIP4) and chewing function (CFQ) significantly improved and remained consistent.

CONCLUSION:

Based on the study results, the MDI retained RPD is a feasible treatment option in partially edentulous patients with slim alveolar ridges.

NEW PROSTHETIC APPROACH TO FULL-ARCH IMPLANT PROSTHESIS USING MULTI-FUNCTIONAL HEALING ABUTMENT

Sertgoz, Atýlla

Friday, September 14th 11:00

Full-arch implant supported fixed prosthesis is one of the most difficult treatment method among the implant treatment alternatives for the edentulous patients due to requiring advance surgical and prosthetic experience. Any mistake during the surgical and prosthetic steps can alter the final esthetic and function of the final prosthesis and extended the treatment time. The aim of this new approach is to simplify the prosthetic phase of treatment by using multi-functional healing abutment (MULTI) and make a screw retained fixed prosthesis by using customized abutment.

6 bone level implants (Swiss Implant, Novodent, Switzerland) were placed on an edentulous mandibular arch. MULTIs were screwed onto implants to permit open healing during osseointegration period. After osseointegration, attaching peek impression caps onto MULTIs, impression was taken and stone cast model was made by using MULTI and implant analogs. Interocclusal record was taken using peek impression caps seated inside of the acrylic base plate. Screw-retained custom abutments and peek model abutments were milled after scanning of the master model. Framework of metal-ceramic restorations fabricated by using peek model abutment. During the metal try-in, sterile packaged screw retained custom abutments were placed and torqued onto implants. After try-in, final laboratory procedures were done by using peek model abutments.

MULTI can be shortened chairside treatment time, facilitate to get interocclusal record and simplify the impression procedure.

IMPLANTOLOGIC CONNECTIONS

Vieco, Faustino

Friday, September 14th 11:00

Coauthors:	Lozano, Fátima	Rodríguez, Paulina	
	Mediavilla, Alfonso	Hernández, Sofía	

INTRODUCTION:

At present, we have a large number of implantological connections available in the market with which we can provide solutions to the different surgical and prosthetic situations that we face.
The use of one type of connection or another, can often determine the long-term success or not of our implant treatment.

MATERIALS AND METHODS:

We made the systematic review using the databases: PUBMED, SCIELO, IBECS, MEDLINE. We performed the search using the following keywords: external connection, internal connection, morse cone, dental implants.
We also analyzed the bibliographical references of the selected articles

OBJETIVES:

The main objective of this review was to study the different types of connections existing in the market, and determine their specific indications in each case.

DISCUSSION:

Dental implants are associated with some crestal bone remodelling. The implant-abutment connection is believed to play an important role in the outcome of the implant therapy.
We also have to take into account the type of connection of the implants according to the type of prosthetic restoration that we are going to realice.

CONCLUSSIONS:

•The internal connection has a better absorption and distribution of forces and a lower rate of loosening and fracture of the retaining screw.
•Systems based on the morse cone theory manage to reduce micromotion and discrepancy between the components to zero thanks to the friction cold fusion that occurs between the screw, pillar and implant and therefore acts as a monobloc.
•The transmission of forces to the bone exerted by the types of implant types does not present statistically significant differences for what is not considered a determining factor in the choice of the type of connection.

INFLUENCE OF MARGINAL BONE RESORPTION ON TWO MINI IMPLANT-RETAINED MANDIBULAR OVERDENTURES: IN VITRO ASSESSMENT

Zeng, Jianyu

Friday, September 14th 11:00

PURPOSE:

This study investigated the effect of marginal bone resorption on the mandibular mini dental implant (MDI)-retained overdenture (MDI-OD) on the edentulous simulation model.

METHODS:

The experimental mandibular edentulous model was modified from a commercial simulation model with artificial soft tissue 2 mm thick under the denture base. Two MDIs (10 mm long and 2.4 mm wide) were bilaterally placed between the lateral incisor and the canine and attached with an exclusive magnetic attachment. Three experimental groups were set up as follows: 1) alveolar bone around the MDI without bone resorption and 2) with bone resorption to 1/2 the length of the implant, and 3) complete denture (CD) without implant support. Strain around the MDI, pressure near the bilateral first molar area, and displacement of each denture were simultaneously measured, loading up to 50 N under bilateral/unilateral loading. Obtained data (n=5) were statistically analyzed using a one-way ANOVA and Tukey's test at a significance level of α=0.05.

RESULTS:

The strain on the implant with bone resorption was approximately 1.5 times higher than that without bone resorption. Although the pressure values in the CD were significantly higher than in MDI-OD ($P<0.05$), there was no statistical difference with or without bone resorption ($p>0.05$). Similarly, the CD demonstrated a greater displacement of the denture base than did the MDI-OD during both bilateral and unilateral loadings ($P<0.05$).

CONCLUSIONS:

MDIs could prevent horizontal shifting and improve overdenture stabilization as do standard-sized implants, even with marginal ridge resorption around the MDI. MDI-OD rehabilitation can be recommended for mandibular edentulous patients if conventional implants cannot be placed for economical and/or anatomical reasons.

POSTERS

Interdisciplinarity

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
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FASSI FIHRI	OMAR	Spain	Limitations of the endodontically treated teeth literature.		Sep 13th 16:00	Poster Area
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OZKAN	IREM	Turkey	Prosthetic Rehabilitation of Patient with Mandibular Defect Caused by Trauma		Sep 13th 16:00	Poster Area
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BACZKOWSKI	BOHDAN	French Polynesia (TAHITI)	Prosthetic rehabilitation of adolescent patients and "Young" adults with congenital and acquired defects of the craniofacial region.		Sep 13th 16:00	Poster Area

ORAL HEALTH RELATED QUALITY OF LIFE IN DIASTEMA TREATMENT

Diken Türksayar, Almira Ada

Thursday, September 13th 16:00

Coauthors:	Bulut, Ali Can	Diken Türksayar, Almira Ada	
	TürkoĞlu, Özge	SaĞlam Atsü, Saadet	

OBJECT:

Nowadays, aesthetic expectations of patients are as important as functional expectations. The diastema originating from the differences between two adjacent tooth sizes on the same jaw or between the arc width and the tooth size; leading to significant aesthetic disturbances and dentofacial incompatibilities. Composite-resin materials provide maximum bonding strenght with a minimally invasive technique and are used for diastema closure for function and aesthetics. Oral Health-Impact Profile(OHIP) can be used to assess various symptoms, problems and mental states of patients with versatile scales. The aim of our study was to evaluate the effect of direct composite veneers, which are alternatives to porcelain veneers, on oral health-related quality of life (QHRQoL) of patients with the OHIP-14 questionnaire.

MATERIAL & METHODS:

In our study, 41 patients who were applied to our clinic with a complaint of wide midline diastema and who did not accept porselen laminate veneer restoration following tooth preparation were evaluated. Direct composite veneer restorations were applied with resin composite layering technique and diastema closure process was performed. OHRQoL was assessed after 3months of treatment by means of OHIP-14 that was administered to the questions about illness, oral health, oral condition and awareness about life comfort and restoration satisfaction, knowledge level, prosthetic satisfaction ratings. Thus, direct composite veneers, which are alternatives to laminate veneers, were evaluated for providing patient expectations and satisfaction ratings and the median scores were compared by Wilcoxon test ($p \leq 0.05$).

RESULTS:

After 3 months of treatment, participants reported significant improvement in OHRQoL values. The pre-treatment QHRQoL value (mean 22) was lower than the post-treatment value (mean 17). According to the Wilcoxon test, the positive direction between the groups was significant ($p \leq 0.05$).

CONCLUSION:

Diastema closure is positively associated with QHRQoL. After treatment, the quality of life of patients is increased, esthetic expectations are provided and have new smile.

LIMITATIONS OF THE ENDODONTICALLY TREATED TEETH LITERATURE

Fassi Fihri, Omar

Thursday, September 13th 16:00

Coauthors:	Arellano-Carbonero, Alfonso		

OBJECTIVE:

The aim was to discuss the role of the ferrule height and the endodontic post on the survival of the endodontically treated teeth (ETT), as well as other restorative factors, and the weaknesses of the articles available.

INTRODUCTION:

The role of the ferrule height and the presence of a post in an endodontically treated tooth have been thoroughly discussed in the last decades. These are not all the factors that have an impact on the survival rate of an ETT. Other factors such as the cementation procedure and the cement itself, together with the material of the final restoration have also been studied.

METHODS:

A MEDLINE search has been performed via PubMed using the following MeSH: "ferrule OR coronal remaining teeth AND endodontically treated teeth"; "buildup OR build-up AND core AND post-and-core"; "post OR dowel AND ferrule height"; "restoration of endodontically treated teeth AND buildup"; "cement OR adhesive OR core materials AND ferrule AND endodontically treated teeth". Articles between 2008-2018 were included.

RESULTS:

Although the two main factors are of paramount importance, the literature has some weaknesses such as the lack of studies concerning the technique and the anatomy/function of the teeth.

CONCLUSION:

The restoration of the endodontically treated teeth has to be seen as a combination of different factors that have been studied and others that have not. Most studies do not combine all the factors to state the outcome of the tooth, where the ferrule effect and conserving as much coronal tooth as possible has proven to be the most predictive factor of an ETT.

ASSOCIATIONS BETWEEN SLEEP HYGIENE AND SALIVARY OXIDATIVE STRESS MARKERS

Illes, Davor

Thursday, September 13th 16:00

Coauthors:	Zilic Alajbeg , Iva		

OBJECTIVES:

It is well established that normal sleep patterns increase parasympathetic and decrease sympathetic nervous system activity. There are suggestions that such metabolic disturbances can have consequences especially in chronic stress related pathological conditions as tempromandibular disturbances (TMD). Wide use of sleep monitoring devices (bracelets, watches etc.) produced widely available data about personal sleep hygiene. Aim of this study was to evaluate association between personal sleep hygiene and oxidative stress markers in saliva.

METHODS:

Ten adult subjects diagnosed with TMP, out of which 7 were female, were asked to wear sleep monitoring bracelet (Mi Band 2, Xiaomi, China) for 7 days. Subjects were asked to collect saliva during 3 consecutive days in period while they were wearing the bracelet. Average sleep time, deep sleep time and light sleep time percentages were calculated for those 3 days and for rest of the days separately. The following oxidative markers were analysed: cortisol, TAC, GPX, SoD, UA and 8-OHdG.
T test was used to determine differences in sleep variables between days when saliva was collected and the remaining period. Spearman's correlations were used to assess relationship between oxidative stress markers and average sleep time, deep sleep and light sleep

RESULTS:

There was no statistical difference between sleep variables considering saliva collection $p>0.05$. Pearson coefficients were between -0.063 and 0.114 for total sleep time and all oxidative markers, -0.095 and 0.176 for light sleep time and 0.089 and 0.244 for deep sleep time.

CONCLUSION:

There is some correlation between deep sleep times measured by the sleep monitoring bracelet and oxidative stress factors in TMD patients.

PROSTHETIC REHABILITATION OF PATIENT WITH MANDIBULAR DEFECT CAUSED BY TRAUMA

Ozkan, Irem

Thursday, September 13th **16:00**

Coauthors:	Aguloglu, Suleyman	Kutsal, Oytun	
	Ulu, Murat	Adak, Berat Metin	

AIM:

Treatment of complete or partial edentulism with implant supported fixed or removable dentures are nowadays highly preferred for improving retention, stability and function of the prosthesis by reducing the patients' pain and discomfort. Therefore, implant supported prostheses can be used in patients with mandibular or maxillary defects due to surgical excision of pathologies (cyst, tumor) , cleft -lip ,cleft- palate, physical trauma (gunshot injuries, traffic accident, etc.). Depending on the localization and size of the defect, patients may experience difficulties such as speech, chewing, etc. In this case report, prosthetic rehabilitation was applied to a patient with a mandibular defect after gunshot injury was present.

CASE:

A 36-year-old Syrian female patient applied to our clinic due to loss of function and a non-aesthetic appearance in the lower anterior region. In the anamnesis received from the patient, it was established that during the war in Syria, a bomb explosion resulted in a defect of the mandible and absence of some teeth. Radiographic examination of the patient revealed that the mandible was repaired with a reconstructed plaque while Extraoral examination of the patient revealed a depression on the left lower lip corner and a scar on soft tissue in the parasymphysis. Partial overdenture implant prosthesis was planned for the patient in order to accommodate deficiencies such as insufficient lip support and the appearance of scars. A partial overdenture prosthesis including 3 locators for the attachment onto the implants as well as two clasps to be rested on #36 and #45 were fabricated.

CONCLUSION:

The patient's speech, chewing and swallowing functions were rehabilitated with the implant-supported partial prosthesis and facial aesthetic were restored by supporting the depressions through the mouth.

EXPRESSION OF APOE BY MASTICATION ON EACH ORGAN

Toyoshita, Yoshifumi

Thursday, September 13th 16:00

Coauthors:	Kan, Yuki	Sasaki, Mizuho	Koshino, Hisashi
	Takeda, Yosuke	Kawanishi, Katsuya	

PURPOSE:

Mastication affects hyper brain functions such as the expression of many kinds of genes. Apolipoprotein A (ApoE) aids in the transportation of cholesterol in the cerebral cortex, but the relationship between mastication and the expression of ApoE remains unclear. Interestingly, ApoE is also found in hepatic tissue and aids in cholesterol metabolism. The aim of this study is to investigate how mastication affects the expression of ApoE in the brain and liver.

MATERIALS AND METHODS:

After starvation for 24 hours, 20 Wister rats were divided into two groups. One group was given 0.2 cal/kg of solid food (solid feed group) and the other was given 0.2 cal/kg of liquid food (liquid feed group). The solid and liquid foods contained identical nutritional profiles. After euthanasia, the entire cerebral cortex and hepatic tissue were removed and mRNA was extracted. The relative expression levels of ApoE in the two groups were measured by real time RT-PCR. The data was analyzed by Student's t-test.

RESULTS:

There were no statistical differences in the expression of ApoE in the cerebral cortex for both groups. It has been reported that dysfunction of ApoE is connected to the onset of Alzheimer's. It has been claimed that mastication dysfunction is related to recognition disorder, but the existence of this mechanism via ApoE was confirmed. On the other hand, the expression level of ApoE in hepatic tissue was higher in the solid feed group than in the liquid feed group. Mastication may transmit signals containing useful digestion information to the liver before the absorption of cholesterol begins in the intestine.

CONCLUSION:

It was suggested that mastication has different effects on the brain and liver in terms of the expression of ApoE.

KEYWORDS:

Mastication, Apo E.

PROSTHETIC REHABILITATION OF ADOLESCENT PATIENTS AND "YOUNG" ADULTS WITH CONGENITAL AND ACQUIRED DEFECTS OF THE CRANIOFACIAL REGION

Baczkowski, Bohdan

Thursday, September 13th 16:00

Coauthors:	Wojtynska, Elzbieta	Mierzwinska-Nastalska, Elzbieta	
	Matenko, Dariusz		

INTRODUCTION:

Prosthetic rehabilitation of children and adolescents with developmental disorders of the craniofacial region is a complicated and multistage treatment process that requires the cooperation of different specializations. This is due to varied etiopathogenesis, the presence of clinical symptoms, degree of tissue deformation, co-occurrence of systemic diseases and dynamic development of the stomatognathic system.

THE OBJECTIVES OF THE STUDY WERE AS FOLLOWS:

1./ Clinical and epidemiological assessment of patients by the age and causes of the stomatognathic system disorders;
2./ Assessment of the patients' quality of life after interdisciplinary treatment of disorders of the craniofacial region;
3./ Elaboration of the management algorithm for prosthetic rehabilitation of patients with the stomatognathic system disorders, depending on the patient age, etiology and kind of disorders.

MATERIAL AND METHODS:

A group of 73 patients (22 girls and women; 51 boys and men) was eligible for this study. They were treated because of abnormalities in the oral cavity in the Department of Prosthodontics, in the years 2004–2017.
Diagnostics and planning of the interdisciplinary treatment of young patients and 'young' adults, based on the data obtained from medical history, clinical and radiological examinations, analyses of diagnostic models, multidisciplinary consultations, depending on the patient's age, extend of changes and deformation of prosthetic bearing area.

RESULTS:

The applied therapeutic methods were the outcome of the analysis of the denture bearing area condition relative to the patients' age, taking into account indications and contraindications concerning individual types of prosthetic restorations in individual age groups, as well as willingness to accept the child-parent cooperation.

CONCLUSIONS:

Management algorithm in prosthetic rehabilitation of patients with developmental disorders must be based on the major determinants, such as clinical picture of disorders, patient's age and the dynamics of stomatognathic system development.
Prevention of consequences of the stomatognathic system disorders in adolescent patients and 'young' adults and the improvement of their everyday quality of life explicitly indicate the rationale for prosthetic rehabilitation at different stages of development and its great significance of the social dimension.

POSTERS

New Technologies

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
CHATZINIKOLAOU	MENI	Greece	Digital Workfolw For Restoring With Laminate Veneers.		Sep 13th 18:00	Poster Area
DI FIORE	ADOLFO	Italy	Accuracy of Full-Arch Digital Impression with Six Different Intraoral Scanner.		Sep 13th 18:00	Poster Area
DORIANA	AGOP FORNA	Romania	Minimally Invasive Techniques (Lasers) in Pre-Prosthetic Surgical Preparation.		Sep 13th 18:00	Poster Area
GIL CALLE	JUANA NELLY	Romania	T-Scan III in temporomandibular disorders treated with Michigan stabilization splints.		Sep 13th 18:00	Poster Area
LIJÓ VÁZQUEZ	SANTIAGO	Spain	Digital workflow in fixed partial prosthesis with monolithic zirconia without finish line, clinical report.		Sep 13th 18:00	Poster Area
LINARDOU	MARIA	Greece	Digital treatment planning of misaligned implants.		Sep 13th 18:00	Poster Area
NAKA	OLGA	Greece	Conventional vs Digital Tooth Wear Management.		Sep 13th 18:00	Poster Area
NUNES PEREIRA	JUAN MANUEL	Spain	Gum conformation record with conventional versus digital technique.		Sep 13th 18:00	Poster Area
YILMAZ	BURAK	United States	Accuracy of Complete-Arch Digital Implant Impressions: Effect of Scanning Techniques and Scan Bodies.		Sep 13th 18:00	Poster Area

DIGITAL WORKFOLW FOR RESTORING WITH LAMINATE VENEERS

Chatzinikolaou, Meni

Thursday, September 13th 18:00

Coauthors:	Gonidis, Theodoros	Sarafianou, Aspasia	Papavasileiou, Giorgos
	Kouveliotis, Giorgos	Kamposiora, Phophi	Charalampous, Konstantinos

BACKGROUND:

Laminate veneers are a reliable treatment option for restoring aesthetic problems in the anterior region, optimally. Entering the digital era, new advances can be obtained in order to make aesthetic restorations predictably and more precisely.

AIM:

The aim of this presentation is to elaborate the clinical and laboratory flow in certain steps for the practitioners to follow. The guidance of digital means is related to the equipment available and can be either fully or partially digitally driven.

MATERIALS AND METHODS:

A series of clinical cases is presented, for the completion of which digital means were used either throughout the restoring procedure or partially intervening in certain fabrication points. Beginning with intraoral Scanning of the dentition, digitally designing the veneers and finally milling the restorations without the need of a mold are some of the described steps of the digital workflow.

RESULTS:

All clinical cases were successfully delivered, corresponding to the high aesthetic demands of the patients. Communicating the desired result through digital images was of great importance for the consent of the patients to proceed with the suggested treatment plan, as they were able to visualize the final outcome, considering the shape and size of the teeth. The fit of the veneers was of high accuracy and the number of try in appointments was seriously reduced, eliminating the time the provisional restorations were on.

CONCLUSION:

Moving from the analogue pathway to the digital, it is up to the clinician to realize not only the benefits of this High Tech equipment but the magnitude of the learning curve, as the procedure demands time devotion in order to result in reliable rehabilitation. However, both the design and the fabrication of the veneers are predictable and easier to communicate to the patients.

ACCURACY OF FULL-ARCH DIGITAL IMPRESSION WITH SIX DIFFERENT INTRAORAL SCANNER

Di Fiore, Adolfo

Thursday, September 13th 18:00

Coauthors:	Meneghello, Roberto	Savio, Gianpaolo	Vigolo, Paolo
	Graiff, Lorenzo	Turchetto, Matteo	Stellini, Edoardo

OBJECTIVE:

Evaluate the accuracy of digital impression for full-arch implant-supported fixed dental prosthesis with six different intraoral scanners (Ios).

MATERIALS AND METHODS:

A virtual model of a mandibular edentulous with six scan-abutment positioned vertically at different height was designed by CAD software, manufactured by a CNC machine tool and subsequently was measured with a coordinate measuring machine. The coordinates of the probed points were transferred into a CAD software (Rhinoceros 5.0) and analyzed with a task specific evaluation protocol to estimate the position and orientation of each scan-abutment. The model was directly digitized using six different Ios (n=15 for group). The software called "Scan-abut" was realized as a plug-in for Rhinoceros 5.0. 3D distances between reference points of digital impression and reference points of model along the x-, y-, and z- axes were calculated at each position for all impression. 3D Position and 3D Distance analysis were calculated to compare the six Ios. The Wilcoxon Test was used to compare groups.

ESSENTIAL RESULTS:

3D Position analysis showed a mean deviation value respect the master model of 31 µm (SD 9 µm) for Scan A, 31 µm (SD 5 µm) for Scan B, 60 µm(SD 31 µm) for Scan C, 246 µm(SD 81 µm) for Scan D and 98 µm(SD 23 µm) for Scan E and 60 µm(SD 18 µm) for Scan F. 3D Distance analysis showed a good linear relation between error and distance with Scan A and Scan F. There was no statistically significant difference between Scan A and Scan B, but a significant difference was present between all the groups.

CONCLUSIONS:

Based on the results of this in vitro study, the Scan A demonstrated the highest accuracy. Four Ios did not achieve the necessary level of accuracy to be used for digital impression in full-arch.

KEYWORDS:

Intraoral Scanner, Digital Impression, Accuracy, Dental Implant, Impression Techniques.

MINIMALLY INVASIVE TECHNIQUES (LASERS) IN PRE-PROSTHETIC SURGICAL PREPARATION

Doriana, Agop Forna

Thursday, September 13th 18:00

Aim of study. The aim of this study was to prove the clinical benefits of the laser-assisted minimally invasive surgery. Materials and method. 60 patients requiring gingivectomy (n=20), frenectomy (n=20), and periimplantitis therapy (n=20) were randomly assigned for treatment with either the conventional surgical technique or with the laser-assisted technique. For each procedure 20 patients were divided in two groups according to the treatment: study group (n=10), laser-assisted surgery, and control group (n=10), conventional surgery. All surgical procedures were performed by the same operator. Laser-assisted versus conventional surgical procedures were compared in relation to the evolution of the intraoperative (pain, bleeding) and postoperative (pain, bleeding, discomfort, healing time) clinical parameters. The postoperative evolution was recorded at 1 day, 3 days, and 7 days. Statistical tests Mann-Whitney and Wilcoxon were performed to compare the results in the laser-assisted groups and conventional surgery groups. Results. Patients undergoing laser-assisted surgical pre prosthetic procedures experienced less intraoperative need for anesthesia and less bleeding as well as less postoperative pain, bleeding, discomfort and shorter healing time. Conclusion. The use of surgical lasers supports the minimal invasive approach in the pre prosthetic surgical procedures.

KEYWORDS:
Lasers, Oral Surgery.

T-SCAN III IN TEMPOROMANDIBULAR DISORDERS TREATED WITH MICHIGAN STABILIZATION SPLINTS

Gil Calle, Juana Nelly

Thursday, September 13th 18:00

Coauthors:	Sánchez Sánchez, Teresa	Aneiros Tarancón, Fernando	
	Aneiros López, Fernando	Ardizone Garcia, Ignacio	

INTRODUCTION. OBJECTIVES:

The occlusal splint has been frequently used as an effective treatment of temporomandibular disorders, myofascial oral pain and sleep bruxism.

The T-Scan III determines the contact time sequencing and the percentage of relative occlusal force between numerous occlusal contacts and then displays them for all dynamic analysis.

The aim of the study was to assess and quantify how the occlusal splint influenced the occlusion and disclusion time.

METHODS:

42 patients with temporomandibular disorders, myofascial oral pain, and bruxism were evaluated. Every patient has been properly informed of the objective of the study. We use a questionnaire to detect TMD, a bruxism Questionnaire and the clinical history (DC/TMD). This study has been approved by the Ethic Committee of Clinical research of San Carlos Hospital.

T-Scan III, was used to measure occlusion and disclusion times as well as left-right and anterior-posterior contact distributions with and without splint therapy.

T student and Wilcoxon tests were used for statistical analyses .

MAIN RESULTS:

Occlusion time in maximum intercuspation with and without oclusal splint were significant.

There were not a statiscally significative difference in the occlusion time in excursive movements. However we can see a decrease in the measures with the use of the splint.

Disclusion time in left-right and anterior-posterior contact with and without oclusal splint were significant.

CONCLUSIONS:

This study showed the use of a stabilization splint has an effect on occlusion and disclusion time.

KEYWORDS:

Oclusal Splint, Temporomandibular Disorders, T-Scan III, Occlusion Time, Disclusion Time.

DIGITAL WORKFLOW IN FIXED PARTIAL PROSTHESIS WITH MONOLITHIC ZIRCONIA WITHOUT FINISH LINE, CLINICAL REPORT

Lijó Vázquez, Santiago

Thursday, September 13th 18:00

Coauthors:	Sayegh Paez, Yvonne	Godoy Ruiz, Laura	
	Solis Rojas, Mariela	Serrano Granger, Carlos	

OBJECTIVE:

To analyse clinical behaviour of monolithic zirconia fixed partial prosthesis in the anterior zone prepared without finish line using digital workflow.

METHODS:

This study included two patients from Universidad Europea de Madrid that were rehabilitated with monolithic zirconium fixed partial dental prosthesis in monolithic from lateral/canine to second premolar. No finishing line was prepared in any abutment and digital workflow was used in both patients. No casts were necessary. The STL file was sent to the laboratory and prosthesis was elaborated from a block of zirconium with CAD/CAM technology.

RESULTS:

Both cases showed monolithic zirconia partial fixed prosthesis like an optimal treatment in terms of function and aesthetics. Combined with digital workflow it reduces the number of appointments and time consumed.

CONCLUSIONS:

Within the limitations due to the number of restorations and the period of time observed, we can say that the monolithic zirconium partial fixed dental prosthesis restorations without termination line combined with digital workflow is a treatment option that completes the functional and aesthetic requirements resolving cases of missing teeth in aesthetic sectors successfully.

DIGITAL TREATMENT PLANNING OF MISALIGNED IMPLANTS

Linardou, María

Thursday, September 13th 18:00

Coauthors:	Pani, Eleftheria	Kamposiora, Phophi	
	Kouveliotis, Giorgos	Papavasiliou, George	

BACKGROUND:

During implant placement, anatomical structures or teeth roots proximity impose the clinician not to attribute a proper implant angulation. In such cases the clinical problem will be at the stage of impression making. The exact implant position has to be transferred in an accurate and stable way, to avoid imperfection during metal framework seating or final torque of the restoration.

AIM/HYPOTHESIS:

The aim in this clinical case is to transfer in an undistracted and accurate way two misaligned implants.

MATERIALS AND METHODS:

Patient 65 years old was referred after implant surgery of two implants in the maxilla. Implants were placed in the area of first and second premolar. The adjacent canine had a distal angulation and at the same time an intense root curve. To avoid penetrating the proximal root during surgical placement, the implant in the first premolar area was placed in a similar angulation. Implant on the second premolar was placed vertical to the occlusal plane. A full digital protocol was chosen to secure stability and accuracy of implants position. A digital impression was made to transfer without any material distortion the exact implant position. This way, maintained all the information (proximity- angulation) needed for the laboratory stages. Metal framework was designed digitally and sintered.

RESULTS:

Digital impression is a stable, repetitive and time efficient technique but it demands from the clinician further and continuous education, to attribute its advantages. In some cases the fully digital concept is perhaps the suitable way for implant treatment.

CONCLUSION AND CLINICAL IMPLICATIONS:

Difficulties during impression making in some cases may cause a lot of inaccuracies to the final reconstruction stages. Moreover, the combination of angulation and proximity with the adjacent teeth, do not allow the transfer due to lack of customized impression posts. Digital impression is a solution in these cases, by transferring without any distortion the exact implant place and making the final restoration accurate and without further clinical complications.

CONVENTIONAL VS DIGITAL TOOTH WEAR MANAGEMENT

Naka, Olga

Thursday, September 13th 18:00

Coauthors:	Tolidis, Kosmas		

OBJECTIVE:

The increasing percentage of young adults presenting with tooth wear (TW) is challenging for the dental practitioner. The functional and aesthetic concerns, the lifestyle habits and the respect to the remaining tooth structure dictate the individualised therapeutic approach to be followed among the conventional and adhesive restorative techniques that have been adopted.
The presentation of the workflow of the minimal invasive rehabilitation of generalised TW clinical cases and the assessment of the therapeutic outcome provided by the conventional and the CAD/CAM techniques used, were the objectives of this study.

METHODS:

Following the accurate diagnosis and the identification of the aetiological factors, the appropriate preventative regime was implemented to the patients. During the monitoring period, patients' compliance was assessed. The formulation of the treatment plan was intended to preserve the remaining tooth structures and included: Step 1: Assessment of facial vertical proportions, freeway space and occlusal plane;

STEP 2:

Assessment of diagnostic wax-up conformed to occlusal and aesthetic requirements; Step 3: Formation of posterior occlusion at an increased vertical dimension; Step 4: Re-establishment of anterior guidance. One group was treated using indirect resin onlays and porcelain veneers. Exclusively digital approach (intraoral camera, dental software and milling machine) was adopted to the other group while CAD/CAM hybrid and ceramic materials restored the posterior and anterior tooth wear accordingly.

RESULTS:

The enhanced aesthetic performance and function as well as the patients' compliance and satisfaction were evident in both cases and were also confirmed in the 5-year follow-up. The difficulty of implementing the complex treatment plan was best dealt with the digital technology, limiting the working time and increasing the predictability of the outcome.

CONCLUSIONS:

The constant implementation of the adhesive protocols and CAD/CAM technology can credibly contribute to the successful management of tooth wear, anticipating the longevity of the outcome over time.

KEYWORDS:

Tooth Wear, Minimal Invasive Dentistry, CAD/CAM Restorations.

GUM CONFORMATION RECORD WITH CONVENTIONAL VERSUS DIGITAL TECHNIQUE

Nunes Pereira, Juan Manuel

Thursday, September 13th 18:00

Coauthors:	Franco, Norma		
	Orejas, Jaime		

PATIENTS AND METHODS:

A 34-year-old male patient from the Universidad Europea de Madrid clinic for whom a fixed ceramic metal rehabilitation from 15 to 25 was indicated as treatment. A technique of shaping the gum was performed between the pillars of 13 and 23 to improve the gingival contour and shape the interdental papillae by means of a provisional which was adjusted every 15 days, the registration of the gum conformation was made by means of the conventional impression technique with the use of impression materials and a digital technique through the use of an intraoral scanner, evaluating which would be the best method to avoid the deformation of the gum during the taking of records.
First of all, a conventional impression was made with a technique in a single step, using an impression material, and then the cast in plaster without pink gum, on which a provisional was made, which was taken to the patient's mouth and then evaluated the adaptation to the gum.
In the digital method, an intraoral impression was made with a 3M brand intraoral scanner and over a STL model a provisional was fabricated, it was taken to the patient's mouth to evaluate the adaptation to the gum and be able to compare it clinically.
The result was that between the two new techniques for copying the gingival contour, the digital technique produces less deformation of the soft tissues of the area that allowed a better adjustment of the final prosthesis.

CONCLUSIONS:

After the study, the digital scanning technique corresponds to the technique of choice because it offers the best information regarding to the registration of the contour of soft tissues.

ACCURACY OF COMPLETE-ARCH DIGITAL IMPLANT IMPRESSIONS: EFFECT OF SCANNING TECHNIQUES AND SCAN BODIES

Yilmaz, Burak

Thursday, September 13th 18:00

Coauthors:	Mizumoto, Ryan	Johnston, William	
	Ozcan, Mutlu		

OBJECTIVE:

This study evaluated the effects of different scanning techniques and intraoral scan bodies (ISB) on the trueness (angular deviation) and precision (variance amongst the scans) of the digital implant impressions in an edentulous situation with 4 implants.

METHODS. FIVE DIFFERENT ISBs:

AF (10-Flo, Denstply), NT (Nt-Trading), DE (Dess), C3D (Core3Dcentres), and Z1 (ZimmerBiomet), and 4 scanning techniques were evaluated: unmodified model (NO), glass fiduciary markers placed on the edentulous ridge (GB), pressure indicating paste brushed over ridge and palate (PP), and floss tied between scan bodies (FL). Five polyurethane edentulous maxillary models were fabricated with 4 implant analogs (TSV 4.1mm, ZimmerBiomet) in first molar and canine positions. ISBs were inserted on the analogs in their respective models and entire surface was scanned using a blue light industrial scanner to generate a master model. Five digital impressions were made of the model using an intraoral scanner (Trios, 3Shape) and 1 of the 4 techniques assigned randomly. Test scans were superimposed over the master model using a best fit algorithm, and the angular deviation of the ISBs was measured. A two-way ANOVA was used to examine the effect of ISB and technique on the angular deviation with subsequent Tukey's post hoc tests. Precision was evaluated by tests for homogeneity of the variances between groups (alpha=.05).

RESULTS:

A statistically significant interaction was found between the effects of ISB and technique on angular deviation (P≤.001). Significant differences were also found among the precision of the groups (P≤.003). The AF-FL scan body-scan technique had a significantly greater angular deviation (1.41 degrees) and presented a lower precision than those of Z1-GB and Z1-PP (P≤.001).

CONCLUSIONS:

The accuracy (trueness and precision) of complete-arch digital implant impressions using ISBs was affected by both the type of ISB and the scanning technique.

POSTERS

Orofacial Pain and Temporomandibular Disorders

HOME

POSTERS

PRESENTATING AUTHOR		Country	TITLE	See	DATE	ROOM
ABDALLAH	MOUHIBI	Morocco	The reliability of Imaging in the diagnosis of temporomandibular joint disorders; a Systematic literature review		Sep 13th 16:00	Poster Area
KRANJCIC	JOSIP	Croatia	Three-dimensional Measurement of Temporal Articular-eminence Inclination.		Sep 13th 16:00	Poster Area
NARUMI	FUMIKO	Japan	Inhibitory Effect of Olfactory Stimulion Sleep Bruxism.		Sep 13th 16:00	Poster Area
SÁNCHEZ ÁVILA	RODRIGO JOSÉ	Spain	Botulinum Toxin Treatment In a Bruxist Patient With Bilateral Masseteric Hypertrophy.		Sep 13th 16:00	Poster Area
TATOGLU	GOKCE	Turkey	The Efficiency of Anterior Repositioning Splint Therapy: A Case Report.		Sep 13th 16:00	Poster Area
TOKSOY	BURCU	Turkey	Evaluation of Canine-Guided-Splint in a Patient with TMD by JVA.		Sep 13th 16:00	Poster Area

THE RELIABILITY OF IMAGING IN THE DIAGNOSIS OF TEMPOROMANDIBULAR JOINT DISORDERS; A SYSTEMATIC LITERATURE REVIW

Abdallah, Mouhibi

Thursday, September 13th 16:00

Coauthors:	Asmaa, redouan		
	Abderrahman, Andoh		

The aim of this study is to assess the reliability of imaging in the diagnosis of TMJ disorders, namely, MR1, Cone Beam and and Ultrasonography.

This systematic review has allowed an analysis of the scientific literature in the period 2005 to September 2015.
This study is based on approved publications that assess the sensitivity, specificity and reliability of each type of imaging technics in the diagnosis of ATM components disorders , their benefits and limitations ;and comparison with other imaging technics not discussed in this study.

Our research allowed collecting 29 relevant articles from a total of 682 treating the subject over a period of 10 years. This lack of valid articles is disproportionate with the importance and value of the imagery in the diagnosis of temporomandibular joint disorders.
Based on the results, a discussion allowed us to conclude that MR1 is the most reliable imaging to determine disc movements compared to the condyle, and to diagnose joint effusions. The Ultrasonography has an acceptable reliability in the diagnosis of anterior disc displacement, but it is not reliable for detecting lateral movement of the disc.

There is not enough evidence- based studies showing the validity and reliability of these imaging in the diagnosis of all joint disorders, such as joint effusions...

In conclusion, further studies in the same subject must be conducted in order to clarify the value of these complementary examinations.

KEYWORDS:
Temporomandibular joint, Magnetic Resonance Imaging, Diagnostic, Computed Tomography, Temporomandibular joint disorders, Ultrasonography, CBCT.

THREE-DIMENSIONAL MEASUREMENT OF TEMPORAL ARTICULAR-EMINENCE INCLINATION

Kranjcic, Josip

Thursday, September 13th 16:00

Coauthors:	Persic Kirsic, Sanja	Celebic, Asja	
	Kovacic, Ines	Vojvodic, Denis	

OBJECTIVE:

Inclination of articular-eminence posterior wall (AE1) is an important element in biomechanics of temporomandibular joint (TMJ). Therefore, the aim of this study was to measure AE1 values between Croatian and American contemporary populations as well as to determine differences between two different methods used for AE1 measurement.

METHODS:

The study was carried out on 90 human (aged 18 to 55 years) dry skulls from 20th century: Croatian population (CP; 30 skulls), American Caucasians (AC; 30 skulls), and African Americans (AA; 30 skulls). Silicone impressions of articular-eminence and fossa glenoidalis were made, and digitalized by optical scanner. Using appropriate software AE1 measurement was performed on 5 simulated sections (from lateral to medial side) through the virtual impressions. AE1 was measured in relation to the Frankfurt horizontal plane by two methods: „fossa roof–eminence top" method (M1) and "best fit line" method (M2). The results obtained were statistically analyzed at significance level of $p<0.05$.

RESULTS:

Mean AE1 M1 for CP was 34.6°, for AA 36.4°, and for AC 37.4°, while mean AE1 M2 for CP was 53.9°, for AA 51.3°, and for AC 55.6°. AE1 values between CP, AC, and AA were not statistically significant ($p>0.05$). Differences between two methods of AE1 measurements (M1 and M2) were statistically significant with significantly higher AE1 values measured when using method M2 ($p<0.05$).

CONCLUSION:

AE1 values vary a lot with wide range of measured values. Differences in AE1 values between three different populations existed, but were not statistically significant. Although both angles used for measurement represent the AE1, measured values obtained by M2 method were higher than values measured by M1 method. Therefore, it is of great importance to state which method was used when expressing AE1 data.

KEYWORDS:

Temporomandibular Joint, Skull, Population

INHIBITORY EFFECT OF OLFACTORY STIMULION SLEEP BRUXISM

Narumi, Fumiko

Thursday, September 13th 16:00

Coauthors:	Okawa, Yutaka	Ueda, Shuji	Ohkawa, Shuji
	Somekawa, Shota	Matsumoto, Daikei	

OBJECTIVE:

To investigate how olfactory stimulation with aromas affects SB

METHODS:

The subjects comprised 26 healthy, dentulous individuals (men: 21, women: 5, mean age: 24.8±3.2 years). Before starting the experiment, SB was confirmed in all 26 subjects using polysomnography (PSG) during nighttime sleep Lavender (LA) was used for the olfactory stimulation and deionized water as the control (CO). The 26 subjects were randomly divided into the LA group and the CO group and a crossover test in which olfactory stimulation was alternatingly administered was performed. To eliminate the influence of initial night effects and obtain baseline data, PSG and masseter electromyography (EMG) measurement using a portable high precision EMG device were conducted on three consecutive nights. When crossing over, to eliminate any carry-over effects of each condition, the olfactory stimulation type was switched after a 1-week washout period and PSG and EMG measurement were performed in the same manner over two consecutive nights. Sleep variables were calculated with PSG analysis and the number of SB events was calculated based on masseter EMG analysis.

RESULTS:

1./ Olfactory stimulation applying LA significantly improved sleep state for five of six sleep variables.
2./ Compared to at baseline and in the CO group, the number of SB events in the LA group significantly decreased.
3./ Results suggested that regardless of subjective sense of favorable or poor sleep, olfactory stimulation using LA may reduce the number of SB events.

CONCLUSIONS:

Our results demonstrated the possibility that olfactory stimulation applying LA improves sleep state while reducing the number of SB events.

KEYWORDS:

Bruxism, Lavender, Polysomnograshy.

BOTULINUM TOXIN TREATMENT IN A BRUXIST PATIENT WITH BILATERAL MASSETERIC HYPERTROPHY

Sánchez Ávila, Rodrigo José

Thursday, September 13th 16:00

Coauthors:	Cid Vermejo, Rosana	Aneiros López, Fernando	
	Ardizone García, Ignacio		

INTRODUCTION:

Among the signs allied to Bruxist patients (sleep bruxism - SB, awake bruxism - AB or both) the hypertrophy of the masseters muscles are findable. These patients may present other signs and symptoms too leading to a functional limitation accompanied mostly by pain. The treatment with botulinum toxin is suitable for addressing the pain and limitation of function in certain cases achieving simultaneously an improvement in aesthetics.

OBJECTIVE:

Our aim is to monitor the therapeutic effect of BTX-A, through electromyographic and photographic records previous and posterior to the infiltration, also through the clinical examination of a patient with bilateral hyperthrophy masseters and diagnosis of myofascial pain (DC / TMD Criteria) and Bruxism according to the last international consensus criteria.

MATERIALS AND METHOD:

Case Report. The clinical diagnosis is elaborated through physical exploration and self-report questionnaires together with an EMG report recording the muscular activity of the masseters prior to the infiltration. Facial photographies are taken, registering an alteration in its facial asymmetry. The records are re-executed, following the same procedure after 2, 5 weeks, 3 and 5 months.

RESULTS:

A decrease in the EMG muscle activity is noticeable in both masseters passed 2 weeks of the infiltration with BTX-A being maintained after 5 weeks. Passed 3 months, a considerable increase in this activity is appreciable being even fewer to the activity previous to the infiltration. After 5 months, similar levels to the initial ones are visible. The limitation of the function and the pain have diminished considerably since the beginning; subsequently, they remained stable.

CONCLUSIONS:

Botulinum toxin is a good alternative for the treatment of the pain and the decrement of the limitation in patients with a high parafunctional activity; since other more conservative treatments have not worked, as it results in a decrease period of the neuromuscular activity.

KEYWORDS:

Bruxism, Botulinum toxin A.

THE EFFICIENCY OF ANTERIOR REPOSITIONING SPLINT THERAPY: A CASE REPORT

Tatoglu, Gokce

Thursday, September 13th 16:00

Coauthors:	Dogan, Arife		

OBJECTIVE:
The anterior repositioning splint is widely used to treat temporomandibular joints(TMJs) with reciprocal clicking. It can help to eliminate joint sounds used in patients with joint sounds. There are many objective and subjective methods for evaluating TMJ sounds. Joint Vibration Analysis(JVA) is an electrovibratography technique based on the principles of motion and friction by surfaces, which can be captured by accelerometers.

METHODS:
A 22 year old male patient referred to us with pain and joint sounds in right TMJ. Clinical examination showed reciprocal click in the right TMJ, and 1mm deviation to the affected side. Mandibular movements were not restricted. Pain was determined using Visual Analog Scale(VAS). TMJ sounds were recorded with JVA. After adjusting the anterior repositioning splint, patient used the splint for 6 weeks. Then, TMJ sounds were recorded again. The parameters such as total integral of the vibration energy, the frequency below 300Hz, the frequency above 300Hz, the ratio of the integral between frequencies above 300Hz and below 300Hz(ratio>300Hz/<300Hz), peak frequency, median frequency and peak amplitude before and after splint therapy were recorded. The parameters were evaluated opening and closing phase separately.

RESULTS:
After therapy, total integral, integral 300, integral 300 and peak amplitude decreased for both opening and closing phase. In opening phase, peak frequency and median frequency in the right TMJ decreased. In closing phase, median frequency decreased for both right and left TMJ. Ratio in the left TMJ decreased. Pain in the right TMJ region reduced. Deviation was not change.

CONCLUSION:
Anterior repositioning splint may be a successful treatment option in reciprocal click cases. Although electrovibratography is an objective modality to follow-up, data should be evaluated with correlation of clinical examination.

KEYWORDS:
Anterior repositioning splint, electrovibratography, joint vibration analysis, reciprocal click, temporomandibular disorders.

EVALUATION OF CANINE-GUIDED-SPLINT IN A PATIENT WITH TMD BY JVA

Toksoy, Burcu

Thursday, September 13th 16:00

Coauthors:	Koc Karakis, Duygu		
	Nalbant, Levent		

OBJECTIVE:

Present case report describe treatment of a patient with temporomandibular joint disorders (TMD) using canine guided splint.Temporomandibular joint (TMJ) sound is considered to be important physical sign of joint dysfunction.Traditionally,TMJ vibrations were examined by palpation or auscultation, however, recently JVA (Joint vibration analysis) based on spectral analysis has been developed to record and analyze TMJ vibrations.JVA provide the clinician visible patterns of TMJ sounds for patient management and JVA data allows a clinician to catogrize patient according to Piper's clasification.

METHODS:

A 26 year-old-female patient referred to Gazi University Department of Prosthodontics clinic to treatment of TMJ dysfunction.Her chief complaints were jaw noises and jaw pain on left side and she described headache on left side.In dental examination, there was limited mouth opening and pain in opening and lateral excursive movements.TMJ sounds, muscle and joint palpation tenderness were performed in treatment protocol. Patient was reported pain in left TMJ, left anterior temporalis muscle and left masseter muscle on palpation.

RESULTS:

Joint vibration analysis of patients was performed with BioJVA system (BioResearch Associates Inc., Milwaukee, WI, USA). All the TMJ vibration parameters, including total integral, integral >300 Hz, integral <300 Hz, >300/<300 ratio, peak amplitude, peak and median frequencies of the patients evaluated.According to clinical examination and Piper's classification of BioJVA , diagnosis was a Disc Displacement without reduction.Treatment was considered as conservative and APA was fabricated.Patient was asked to use it at night, at least for 8 hours.Patient was seen for a 2 week follow-up and reported a reduction in muscle and joint pain and better jaw movement.

CONCLUSION:

After the use of the APS for 3 months,all pain in muscles has gone.Joint vibration analysis of BioJVA was repeated and indicated TMD as 'disc displacement with reduction'.

KEYWORDS:

JVA, Orofacial Pain, Stabilization Splint, TMD-

POSTERS

Removable Prosthodontic

HOME

POSTERS

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BLUM	IGOR	United Kingdom	A Case Series of Immediate Removable Gingival Veneer Dentures.		Sep 13th 18:00	Poster Area
GULGEZEN AYDIN	HILAL	Turkey	Oral Rehabilitation After Radiotherapy: A Case Report.		Sep 13th 18:00	Poster Area
KARAISKOU	GEORGIA	Greece	Fully digital workflow of obturator prostheses.		Sep 13th 18:00	Poster Area
KILIC	AYBIKE	Turkey	Fabrication Of Sectional Prosthesis For The Patient With Microstomia.		Sep 13th 18:00	Poster Area
KOVACIC	INES	Croatia	Thermographic monitoring of temperature changes in mini dental implant overdenture patients.		Sep 13th 18:00	Poster Area
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SABAK	CANAN	Turkey	Full Mouth Prosthetic Rehabilitation of Vertical Dimension A Case Report.		Sep 13th 18:00	Poster Area

PROSTHETIC OBTURATION OF A PREMAXILLARY DEFECT: A CASE REPORT

Arslan, Betul

Thursday, September 13th 18:00

Coauthors:	Bakic, Halil		
	Nalbant, Levent		

OBJECTİVES:

Partial osteotomies for occuring maxillary facial tumors are the surgical approach to the frequently preferred.After surgical excision of maxillofacial tumors, obturators ara applied following soft tissue healing.Obturators are prostheses used to replace maxillary tissues that are missing congenitally or removed by trauma or tumor ablative surgery.These prostheses are used to restore function, aesthetics and to rehabilitate the psychological problems in these patients.In this case, rehabilitation with obturator prosthesis was explained for a patient subjected to premaxillay resection because of tumory mass.

METHODS:

50 year old male patient refered to Gazi University Department of Prosthodontics clinic to treatment of premaxillary defect.There were only rigth and left first molar teeth in maxilla.Teeth were prepared with champer marjinal end. Impression was taken with polyvinly siloxane. After glaze processing, restoration cemented with polycarboxylate.Then a steril sponge was put on defect area and impression taken with alginate.Framework was controlled in mouth, and vertical dimension was measured.Then denture triying were made on patient and sent to conventional finish.After acylic processes and polymerization, the bulb segments associated with the defect edges, was applied soft lining material to remove traumatic effect from the defect area and retention and stability.

RESULT:

After finishing and polishing of the bulb, obturator checked on mounth and given to patient who has informed for use.First control session, satisfactory results were found regarding the patient confidence.

CONCLUSİON:

In the presence of insufficient surgical treatments or absence of surgical treatment, the rehabilitations of the defects were provided with obturators.Suitable treatment planning must be done for different class of maxillary defects.For making it easier to adapt, we can reline the defect side of the prostheses with soft relining materials.

KEYWORDS:

Maxillary defect, Obturator, Prosthetic rehabilitation, Soft relining materials.

IMPLANT-RETAINED OVERDENTURE ATTACHMENTS: A REVIEW

Baca-González, Laura

Thursday, September 13th 18:00

Coauthors:	Seoane-Pampin, Carlos	Antonaya Martín, José Luis	
	Molinero-Mourelle, Pedro	Del Río Highsmith, Jaime	

INTRODUCTION:

The aim of this study is to analyse the current knowledge on implant-retained snap-on-like overdenture attachments.

MATERIAL AND METHODS:

A search was undertaken on the data bases of PubMed, Cochrane Plus, and Science Direct. The followed strategy was followed: (dental prosthesis OR dental implants OR implant-retained OR overdenture) AND attachment. The inclusion criteria were articles written in English or Spanish in the last five years. Papers referred by other articles were also includes. Articles not available in full text through the Complutense University Library where excluded.

RESULTS:

The initial outcome was 670. Then articles where selected by title and abstract and duplicates eliminated. Final results will be discussed within this articles.

CONCLUSIONS:

There are many options available in the market in terms of implant-retained overdenture attachments. Understanding them allows the professional choose the best option for each case.

A CASE SERIES OF REMOVABLE GINGIVAL VENEER DENTURES

Blum, Igor

Thursday, September 13th 18:00

Coauthors:	Végh, Andras		

PURPOSE:

The Gingival Veneer Denture may be considered to be an ideal choice of removable prosthesis to (1) camouflage aesthetic problems associated with moderate to advanced generalised chronic periodontal disease, including loss of interdental papillae, gingival recession, exposed root surfaces, tooth mobility and (2) to replace a single missing tooth, especially in the anterior maxillary region. Whilst the Gingival Veneer technique is well documented, no clinical data exists, to date, on the use of the Gingival Veneer Denture which can be used to simultaneously provide improved gingival appearance and tooth replacement in the aesthetic zone. A series of cases is presented showing the high success rate and good patient tolerance of Gingival Veneer Dentures.

METHODS:

Three patients (age range 54-67) presented with an aesthetic concern of gingival recession affecting the upper anterior sextant and Grade III mobility of a single maxillary anterior tooth. Because of marked gag reflexes these patients did not wear maxillary partial dentures replacing their missing posterior teeth. They did not report to have impaired masticatory function. The patients' medical history was unremarkable. All patients had a high smile line. Diagnoses of generalized moderate-to-advanced chronic periodontitis resulting in compromised anterior gingival aesthetics and Grade III mobility of a single maxillary anterior tooth was made. Following oral hygiene instructions and periodontal treatment the loose tooth was extracted and an immediate gingival veneer denture was provided to improve gingival aesthetics and replace the extracted tooth. The clinical and laboratory stages are presented.

RESULTS:

The immediate gingival veneer denture successfully camouflages the consequences of periodontal disease and provides simultaneous tooth replacement in the aesthetic zone, resulting in aesthetic and functional patient satisfaction without inducing an adverse gag reflex.

CONCLUSION:

The immediate gingival veneer denture is a predictable, inexpensive, alternative prosthesis which gives an improved cosmetic result and simultaneous tooth replacement.

ORAL REHABILITATION AFTER RADIOTHERAPY: A CASE REPORT

Gulgezen Aydýn, Hilal

Thursday, September 13th 18:00

Coauthors:	Diken Türksayar, Almira Ada		

OBJECTIVE:

In patients with cancer history, common cervical caries can be observed in teeth after radiotherapy. It is necessary to provide both aesthetics and comfort in these patients. Caries may be spread throughout the cervical area and so the teeth while the dental restoration may result in large material loss and the placement of removable prosthesis clasps on these teeth may cause destructive forces. In the treatment of short edentulous areas, prostheses with unilateral precision attachment must be considered in these patients.

METHODS:

A 58-year-old male patient applied to our clinic with the complaints of discolored teeth and partial tooth loss. Clinical and radiological examinations revealed that the patient had extensive cervical caries in almost all teeth and 26, 27, 36, 37 and 46 numbered teeth were lost. A dental and medical history was obtained and it revealed that the patient had been treated with radiotherapy and chemotherapy for thyroid cancer about 2 years ago. Dental implant treatment was eradicated. After the oncology consultation, periodontally unsupported lower both central and lateral teeth were extracted, the caries were removed carefully from all decayed teeth and restored with composite fillings. Afterwards, it was decided to make a removable prosthesis with an MK-1 precision attachment for the left side of upper jaw, and a conventional partial removable prosthesis for the lower jaw. The teeth 24 and 25 with large fillings were restored with crowns and then the construction of removable dentures was completed.

RESULTS:

The patient called for follow up at 3rd and 6th months, and it was seen that the treatment was meet the expectations of the patient.

CONCLUSION:

Radiation caries were restored and a removable partial denture with an MK-1 precision attachment was made to the patient who had unilateral tooth loss in the upper jaw and aesthetic appearance was achieved.

FULLY DIGITAL WORKFLOW OF OBTURADOR PROSTHESES

Karaiskou, Georgia

Thursday, September 13th 18:00

Coauthors:	Tasopoulos, Theodoros	Zoidis, Panagiotis	
	Kouveliotis, Georgios		

INTRODUCTION:

Most digital appliances are related to fixed or implant restorations. A full digital workflow for maxillofacial prostheses is not yet described.

AIM:

The aim of this presentation is to describe a full digital fabrication protocol of obturator prostheses.

MATERIALS AND METHODS:

A 47 year-old female diagnosed with an adenoid cystic carcinoma. Treatment plan was the fabrication of a 3D printed obturator. CBCT scan of the resective area was performed. A 3D printer and a 3D planner software were used. The patient's defect, teeth and occlusion were scanned digitally using an intraoral scanner. A milled polyetheretheracetone obturator framework was constructed.

RESULTS:

A full digital fabrication protocol for obturator decreases chairside time and difficulties during impression adding accuracy and comfort to treatment.

CONCLUSION:

The manipulation of a routine post-operative Computed Tomography (CT) scanner in conjunction with a 3D printer allowed for the fabrication of a 3D printed anatomic model from which the hollow bulb obturator was fabricated

FABRICATION OF SECTIONAL PROSTHESIS FOR THE PATIENT WITH MICROSTOMIA

Kilic, Aybike

Thursday, September 13th 18:00

Coauthors:	Yalug, Suat		
	Cevik, Pinar		

OBJECTIVE:

Sectional prosthesis could be an alternative treatment for the patients with restricted mouth opening induced by maxillofacial defects, burns, scleroderma, post-operative head and neck injury, trismus, surgical treatment of orofacial cancers, cleft lips or Plummer Vinson syndrome. In such cases, prosthodontic managements require costly or complicated attachment devices, e.g., hinges, locking levers, orthodontic expansion screws, magnet systems, slide lock joints, etc.
This clinical report describes the prosthodontic rehabilitation of an edentulous patient with microstomia induced by perioral burns with a maxillary removable sectional complete denture fabricated with precision attachments.

METHODS:

The initial impressions were taken with the aid of alginate impression material by using stock impression trays. The wax patterns were made on the definitive cast models and try-in processes were made on the patient. Subsequently, the vertical dimension of occlusion and the centric relation records were taken. The left and the right segments of the sectional maxillary prosthesis were planned. The Cr-Co frameworks were fabricated on the definitive cast model and three precision attachments were inserted to the metal framework. The heat-polymerized acrylic resin complete dentures were fabricated using injection molding process. The final adjustments were made on the patient's mouth by using a direct hard relining material since detailed anatomic sites could not be transferred to the cast model by the initial impression. Because the mouth opening was adequate for the mandibular arch, a mandibular classical removable complete denture was fabricated.

RESULTS:

The patient was informed for the use of the sectional maxillary complete denture. After the first follow-up visit, controls were made regarding the patient confidence and the satisfactory results were found.

CONCLUSION:

The sectional complete dentures could be used as applicable treatment options for the restricted mouth opening patients. Precision attachments could be used in such cases.

KEYWORDS:

Complete Denture, Microstomia, Precision Attachments, Sectional Prosthesis.

THERMOGRAPHIC MONITORING OF TEMPERATURE CHANGES IN MINI DENTAL IMPLANT OVERDENTURE PATIENTS

Kovacic, Inés

Thursday, September 13th 18:00

Coauthors:	Batinjan, Goran	Filipovic Zore, Irina	Celebic, Asja ff
	Persic, Sanja	Kranjcic, Josip	

OBJECTIVES:

To identify intraoral areas defined by thermal gradient and measure temperature differences of the mucosa under removable overdentures after performing chewing tasks with and without mini dental implant (MDI) loading.

METHODS:

Each of 20 completely edentulous patients received 4 MDI in the mandible. Implants were immediately loaded. Patients were fully adapted to their dentures (3-12 months of wearing after all adjustments finished). Recordings with thermal camera were made: 1. Referent temperature was obtained at resting (dentures in mouth 15 minutes without occlusal contacts), 2. Immediately after 10 minutes of cotton-roll chewing task, and 3. After chewing task till the temperature dropped to reference value. The same procedure was repeated with same overdentures, but after matrices (retention caps) had been removed and the respective dentures turned into mucosa-borne dentures.

RESULTS:

Temperature increased significantly after chewing task and remained almost constant throughout the first minute after denture removal. It took almost 3 minutes to return to the reference temperature. With mucosa borne overdentures (matrices removed) temperature increased to 37.7°C±1.2°C, while with MDI loaded overdentures (matrices mounted) temperature increased to 36.8°C±0.9° C. The area close to MDIs did not heat up with matrices mounted. In both cases the highest temperature was recorded in posterior denture-borne areas. It took a bit longer ($p<0.05$) till the temperature dropped down to the reference value with mucosa-borne overdenture (matrices removed).

CONCLUSION:

The temperature of the mucosa under dentures increased less after chewing tasks when MDIs were loaded.

KEYWORDS:

Thermography, Complete Denture, Mini Dental Implants, Gingiva Temperature.

EFFECTS OF VARIOUS DENTURE CLEANSERS ON COLOR STABILITY OF POLYAMIDE POLYMER

Ozyilmaz, Ozgun Yusuf

Thursday, September 13th 18:00

Coauthors:	Akin, Ceyda		

PURPOSE:
The aim of this study was to evaluate the effect of the various denture cleansers on the color stability of polyamid polymer (Deflex).

MATERIALS AND METHODS:
Fifty specimens were prepared (measuring 10 mm×2 mm) and randomly divided into 1 control and 4 experimental subgroups (n=10). Test groups were immersed for the equivalent of clinical use in the following solutions: Distilled water (control), Corega, Protefix, Curaprox, Perlodent. Color stability values were measured using colorimeter before and after immersion in distilled water and in 4 different denture cleansers for 8 h for 140 days. Baseline and after immersion values of samples were recorded. Color values CIE (Commission Internationale d'Eclairage) L*, a*, and b * were measured and change in color (ΔE) was calculated. Data were analyzed by one-way analysis of variance (ANOVA) followed by Tukey's honestly significant difference test. $p<0.05$ was considered significant.

RESULTS:
There was no statistical difference among Corega (6.37±1.35), Protefix (5.24±1.57), and Perlodent (5.68±1.28) groups in terms of ΔE ($p>0.05$) but statistically differences were found compared with Control (2.73±0.78) and Curaprox (3.51±1.19) groups. While 3 experimental groups showed classified as: appreciable; Corega group showed classified as: much.

CONCLUSION:
Denture cleansers can cause significant color alterations on polyamid polymer so that should use carefully by known their effect.

IMPLANT SUPPORTED PARTIAL OVERDENTURES

Pani, Eleftheria

Thursday, September 13th 18:00

Coauthors:	Linardou, María	Kamposiora, Phophi	
	Kouveliotis, Giorgos	Papavasiliou, George	

BACKGROUND:

The restoration of patients with a minimum number of implants has been in the interest of clinical dentists since the onset of implant dentistry. Through the years it has evolved from restoring patients with eight or more implants, to concepts like "all on four" with good clinical results. Implant supported overdentures have provided with viable solutions with four (maxilla), two (mandible) or even one implant.

AIM/HYPOTHESIS

Bridging the gap between the above mentioned fixed and removable solutions, is the concept of implant supported partial overdentures.

MATERIALS AND METHODS:

Implant supported partial overdentures have a fixed part, supported by implants or teeth and implants and a removable part. In this presentation various clinical situations where an implant supported partial overdenture was the treatment of choise, will be presented. All prostheses have been in place for a minimum of two years, so their clinical outcome as well as their advantages and disadvantages will be discussed.

RESULTS:

Implant supported partial overdentures require a small number of implants. The reasons for the small number of implants include anatomical problems, loss of implants from a greater number that were placed or financial inability of the patient to cover more implants. Non-favorable anterior-posterior spread of the implants may be another situation leading to the use of an implant supported partial overdenture. Finally the use of such an option can improve clinical situations where a strategically placed implant can lead to a more favorable Kennedy classification situation for the partial overdenture.

CONCLUSION AND CLINICAL IMPLICATIONS:

Implant supported removable overdentures can be the treatment of choise for several patients.

FULL MOUTH PROSTHETIC REHABILITATION OF VERTICAL DIMENSION A CASE REPORT

Sabak, Canan

Thursday, September 13th 18:00

Coauthors:	Degirmenci, Kubra		

OBJECTİVE:

Rehabilitation of worn dentititon is challenging situation for clinicans. Excessive worn dentition can cause reduced vertical dimension of occlusion and full mouth restorations can be needed. Planning the restoration is related with number of teeth, free-way space, vertical dimension and health of temporomandibular joint. Also, restorative material should be selected carefully. In this case report, the prosthetic treatment of a patient with reduced occlusal vertical dimension due to bruxism was described.

METHOD:

A 58-year-old male patient with esthetic and functional problems presented to Bolu Abant Izzet Baysal University, Department of Prosthodontics. Patient was examined clinically and radiographically. Clinical examination revealed moderate dental wear and reduced vertical dimension of occlusion without clinical evidence of a temporomandibular disorder. Also, because of absence mandibular posterior teeth, maxillary posterior teeth elongated to the posterior region of the mandible. So, full mouth rehabilitation was planned and it was decided to increase the occlusal vertical dimension about 1.5 mm. All teeth were prepared and temporary restorations were used for 1 month. Because there was no temporomandibular disharmony with temporary restorations, final restorations were performed. Zirconia fused to porcelain restorations were done for maxillary anterior teeth, metal fused to porcelain restorations were done for posterior maxillary teeth. 31,32,33,34,41,42,43,44 and 45 teeth were restored with metal fused to porcelain and removable partial denture was applied to replace mandibular posterior teeth.

RESULTS:

At recall appointments, the occlusion and vertical occlusal dimension were stated unchanged. After 9 months, there was no problem with restorations esthetically and biomechanically.

CONCLUSION:

Full mouth restorations can be optimal for functional rehabilitation of reduced vertical occlusal dimension. Also, esthetic harmony of restorations with facial measurements satisfy patient.

KEYWORDS:

Vertical Dimension Loss, Full Mouth Reconstruction.

EFFECT OF STAINING SOLUTIONS ON COLOUR AND SURFACE ROUGHNESS OF DIFFERENT BASE MATERIALS

Demir, Necla

Friday, September 14th 11:45

Coauthors:	Subasi, M.Gulce		
	Karci, Muhammet		

PURPOSE:

The disadvantage of the acrylic materials that are used for prosthetic removable dentures is the change in esthetic and mechanical properties over time. Colour change of acrylic materials are an important factor for esthetical demands. The color change of denture materials present important information on the long term availability. Surface roughness of acrylic resins may be effected by material composition and staining solutions. The purpose of this study was to determine the color change and surface roughness of 3 different denture base materials stored in 4 different solutions for short time interval.

MATERIALS AND METHODS:

Twenty disc-shaped samples, with uniform size of 10 mm diameter and 2,5 mm thickness were obtained for each denture base material (n=5). These 3 different denture base materials; heat polymerized PMMA (Meliodent), autopolymerized PMMA (Meliodent) and Microwave- Irradiated denture acrylic base material (Acron MC), were kept in 4 different solutions (tea, distilled water, coffee,and coke) for 48 hours (n). Color stability was measured with spectrophotometer at 2 different time points (time 0 and on 48 th hour). The colour components (L*, a* and b*) of the specimens were also measured before and after exposure to one of the four products. The surface roughness was also measured by surface prophylometer (Ra) at the same time intervals. The colour and surface roughness measurements on each specimen were repeated 3 times on 3 different areas. The color change (ΔE) was used for statistical analysis. Tea was prepared using one tea bag per 150 ml hot water. Instant coffee was prepared by mixing 2 grams coffee in 150 ml hot water. 150 ml of coke were poured directly from its bottle.

RESULTS:

One and two way analysis of variance (ANOVA) and post hoc Tukey HSD tests were used to evaluate the data statistically. Statistically significant differences were found between different denture base materials. The highest colour change was observed for autopolymerized acrylic material and the specimens in heat polymerized group ($p<0.005$) were more resistant to colour change compared to the other groups.The colour stability of microwave-irradiated acrylic denture material was found to be statistically better than autoploymerized acrylic material.The effect of different solutions on colour change (ΔE) of denture materials was found to be insignificant ($p>0.005$). On the other hand, the order of colour change for the mean value of staining solutions was coke>tea >coffee> distilled water. The colour change interaction between the material and staining solution was found to be statistically insignificant ($p>0.005$). The surface roughness of denture base materials and staining solutions showed significant interactions ($p<0.005$). Surface roughness of autopolymerized resin were found to be significantly higher in all solutions ($p<0.005$). The order of surface roughness for the mean value of denture base materials was autopolymerized>microwave-irradiated>heat polymerized base material. Coke and coffee significantly increased the surface roughness of base materials. The mean value of roughness change of tea was higher than distilled water for the specimens.

CONCLUSION:

When kept in different solutions taken intraorally, heat polymerized base material was less stained than the autopolymerized and microwave-irradiated acrylic base materials. The color change of denture base materials was highest in coke. Coke and coffee increased the surface roughness values of acrylic resins. The surface roughness of heat polymerized acrylic base material was the least effected group after exposure to staining solutions.

KEYWORDS:

Denture base materials, color stability,surface roughness

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